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DISEASES CAUSED BY BACTERIA AND FUNGI

KRUSE, E. (1953). Varianter af *Staphylococcus aureus* og *albus*. [**Variants of** *Staph. aureus* **and** *Staph. albus*.]—*Nord. VetMed.* **5**, 982-994. [In Danish. English and German summaries.] 2590

K. discussed *Staph. aureus* and its variants, and gave an account of variants of *Staph. aureus* and *Staph. albus* obtained from routine milk samples. A variant of R type with colonies of " curly " appearance was found in 8·4% of 1,976 ordinary bacterial-count plates (5·5% curly *Staph. aureus*, 2·9% curly *Staph. albus*). *Staph. albus* is the basic form which under special conditions develops special growth and pathogenic characters. These variations disappear and reversion to original type occurs later.—R. B. HOLCOMBE.

BARBER, M. (1953). **Penicillin-resistant and penicillin-dependent staphylococcal variants.** —*J. gen. Microbiol.* **8**, 111-115. 2591

Four strains of *Staph. aureus* were subjected to serial transfer on penicillin ditch-plates. They gave rise to four distinct types of penicillin-resistant variant; B. described their main characteristics. One of the variant types was penicillin-dependent.

Photographs illustrate the growth of the variants in ditch-plates, and the growth of the penicillin-dependent variant on nutrient agar alone and on nutrient agar with penicillin.

—JOHN SEAMER.

SCHALM, O. W. & WOODS, G. M. (1953). *Micrococcus pyogenes* **in bovine milk. I. Identification. II. Relationship of shedding characteristics to occurrence of clinical mastitis.**—*Amer. J. vet. Res.* **14**, 530-533 & 534 - 538. [Authors' conclusions modified.] 2592

I & II. The authors concluded that the criteria for pathogenicity of *Staphylococcus pyogenes* encountered in the udder are: (a) the production of β-toxin on agar containing blood capable of demonstrating it, and/or (b) the coagulation of rabbit plasma.

The source of *Staph. pyogenes* in infection of the bovine mammary gland is essentially other infected udders. The organisms from milk may show considerable resistance to penicillin and the percentage of resistant strains may vary among herds. Consecutive complete herd surveys for the infection may reveal considerable variation from test to test. In infected herds the average incidence is high and tends to increase with age. Infection probably leads to the development of resistance.

RICHOU, R., JULIENNE, P., JACQUET, J. & GERBEAUX, C. (1952). Sur la présence, chez les bovidés, des antitoxines staphylococciques α et β, d'origine naturelle. [**Staphylococcal antitoxins in the blood of cattle.**]—*C. R. Soc. Biol., Paris.* **146**, 177-179. 2593

The authors investigated the titres of α and β staphylococcal antitoxins in 95 female cattle from 10 months to 15 years of age. Alpha antitoxin was present in 80 of them, and β antitoxin in 70, supporting the view that α and β infections are of comparable importance. The older animals had higher titres. The authors advocated the production of an improved anatoxin containing both α and β antigens.

—NESTA DEAN.

RAMON, G., RICHOU, R., JULIENNE, P. & JACQUET, J. (1953) . De l'influence comparée des suspensions de staphylocoques et de colibacilles tués (anavaccins) et de l'alun de potassium sur l'immunité engendrée, chez les bovidés, par l'anatoxine staphylococcique. [**The effect of killed staphylococci and** *Bact. coli* **and of potassium alum on the immunity produced in cattle by staphylococcal toxoid.**] —*Bull. Off. int. Epiz.* **39**, 610-618. 2594

Therapy of bovine staphylococcal mastitis should be effected by combined use of α and β

toxoid in which is incorporated either a suspension of killed staphylococci or *Bact. coli* alone or, better, further enhanced with potassium alum.—J.D.

COLLINSON, R. W. (1949). **Staphylococcic mastitis.** — *J. Amer. vet. med. Ass.* **114,** 147-150. **2595**

C. described observations on the microscopic examination of incubated composite milk samples. All infected animals were treated by the s/c injection of three doses of staphylococcal toxoid at intervals of 5–7 days. When streptococcal as well as staphylococcal infection was present penicillin was given by infusion into the udder together with the toxoid. He gave details of the results in 104 cases.

—J. E. LANCASTER.

BERTHELON, M. & RAMPIN, D. (1953). Observations sur la mammite staphylococcique chronique enzootique de la vache. **[Chronic staphylococcal mastitis in cows.]**—*Rev. Méd. vét.* **104,** 657-673. **2596**

A clinical account, in some detail, of staphylococcal mastitis in two herds of cows, and of antibiotic treatment. Vaccination with specific autogenous vaccines plus local treatment did not increase antibiotic efficiency.

—R. B. HOLCOMBE.

MIHAJLOVIĆ, B. (1953). **[Characteristics of staphylococci from cases of ovine gangrenous mastitis.]**—*Acta vet., Belgrade.* **3,** 3-11. [In Serbian. English summary.] **2597**

Of 45 strains of staphylococci from gangrenous mastitis in sheep 42 belonged to the type *Staph. aureus* and 3 to the type *Staph. albus.* The latter did not ferment mannitol nor produce haemolysin or coagulase; they were not pathogenic for mice.

Of the *Staph. aureus* strains all except one fermented mannitol; they were all pathogenic for mice, and were coagulase- and haemolysin-positive.—I. MARTINI.

GOWANS, J. L. (1953). **The effect of some antibiotics on coccal infection in mice.**—*Brit. J. exp. Path.* **34,** 195-201. [Author's summary modified.] **2598**

Mice were infected intraperitoneally with pyogenic cocci and treated with antibiotics, and bacteriological and cytological studies were made of the peritoneal exudates to determine the fate of the bacteria and the part played by phagocytes in removing them. Penicillin, "micrococcin-Triton" [*V.B.* 22, 3040], aureomycin and terramycin killed fewer streptococci in leucopenic than in normal mice, yet normal mice infected with streptococci, pneumococci or staphylococci commonly relapsed.

LIVONI, P. (1953). Expériences faites au Danemark pour la lutte collective contre la mammite des femelles bovines. **[Control of bovine mastitis in Denmark.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 188-207. [English summary.] **2599**

Large-scale studies in the island of Samsø indicated that the incidence of mastitis was lowest where the width of the individual stalls was more than 100 cm., and that there was a lower incidence among hand-milked cows than among those that were machine milked. The incidence and the causal agents were the same as on the mainland. Voluntary control measures, penicillin therapy and improved hygiene had resulted in an 86% cure over a period of two years. The incidence of non-streptococcal mastitis had also been reduced.—G. V. LAUGIER.

MURPHY, J. M. (1947). **The genesis of bovine udder infection and mastitis. II. The occurrence of streptococcal infection in a cow population during a seven-year period and its relationship to age.**—*Amer. J. vet. Res.* **8,** 29-42. **2600**

An account of observations on two herds each of 60 cows on the spread of *Str. agalactiae* during a period of seven years. Clinically affected cows were treated. At the start of the period 33% of the cows in one herd and 19% of those in the other were infected with Group B streptococci.

Through the years, the spread of infection was slow, but the infection-rate was shown to be a function of age and to be quite unrelated to external factors such as milking-technique or management.—C. D. WILSON.

SPENCER, G. R. & KRAFT, M. E. (1949). **Pathogenesis of bovine mastitis. I. The relation of age to streptococcic infection.**—*Amer. J. vet. Res.* **10,** 115-118. **2601**

An account of a study on mastitis in 12 herds. The authors considered from their findings that the degree of exposure to infection, and other factors, are more important than the "age factor" described by Murphy [see preceding abst.]—J. E. LANCASTER.

KELLER, H. (1954). *Streptococcus faecalis* in Hühnereiern. **[*Str. faecalis* in hens' eggs.]**—*Lebensmitteltierarzt.* **5,** 43. **2602**

A number of eggs from the same Rhode Island Red hen of a flock of 6 contained hard,

reddish deposits in the albumen. On culture the deposits were found to contain *Str. faecalis*.
—W. G. SILLER.

LEACH, T. M. & LANCASTER, J. E. (1954). **Inhibition of the growth of *Streptcoccus pyogenes* in roll tubes.**—*Brit. vet. J.* **110**, 39-48. 2603

The authors described an unusual growth phenomenon occurring in blood agar roll tubes inoculated with *Str. pyogenes*, plugged with cotton wool but not sealed, and incubated at upwards of 38° C., growth being confined to the medium at the open end of the tube. In similar roll tubes which had been sealed normal growth occurred after incubation at temperatures up to 40° C. When either the relative humidity or the carbon dioxide tension was increased normal growth occurred in the plugged tubes at 40° and 41° C.—F.E.W.

STEIN, C. D. (1954). **A review of anthrax in livestock during 1952 with reference to outbreaks in the first eight months of 1953.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 101-109. 2604

During 1952 there were 1,644 outbreaks of anthrax in the U.S.A., involving 20 horses, 6 mules, 1,578 cattle, 233 sheep, 1,614 pigs and 672 mink. During the first 8 months of 1953 there were only 184 outbreaks, involving 8 horses, 310 cattle, 51 sheep, 111 pigs, and 86 mink. It was estimated that 41% of the 1952 outbreaks were caused by contamination of food with anthrax spores, 20% by vaccination with faulty vaccine, and 20% by soil infection; in the remainder the cause was not determined.
—R.M.

ZIEGER, W. (1953). Atypischer Milzbrand bei Schweinen. **[Atypical anthrax in pigs.]**—*Mh. Tierheilk.* **5**, 79-88. 2605

An account of atypical manifestations of anthrax in 4 pigs which had been slaughtered as an emergency measure. The disease had not been recognized in the course of meat inspection. An Ascoli precipitation test gave a negative reaction, but *B. anthracis* was demonstrated in cultures.—H. BEHRENS.

WINTER, A. (1954). **Report on Federal-State cooperative tuberculosis eradication project.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 156-159. 2606

W. pointed out that TB. of cattle in the U.S.A. is by no means eradicated, and that a careful survey might show the extent of TB. in cattle to be greater than available records indicate. There was, however, a reduction in the number of carcasses found to be tuberculous—1,406 (or one in every 10,800 cattle slaughtered) in 1953 compared with 3,133 in 1952. He emphasized the value of tracing the origin of all cattle found to be infected with TB. at slaughter. Tuberculin tests were carried out in the herds to which infected animals were traced, and in this way an additional 848 reactors were detected.

Condemnation of pig carcasses infected with avian type *M. tuberculosis* caused an average annual loss of $800,000. In 1953 nearly two and a half million carcasses of pigs were found to be infected, of which nearly 10,000 were totally condemned.

The number of intradermal johnin tests for Johne's disease in cattle increased. Out of 5,077 animals in infected herds, 7·1% reacted to the test.—R.M.

DORMER, B. A., MARTINAGLIA, G. & BEEMER, A. M. (1953). **Observations on the longevity of human and bovine tubercle bacilli in calabash milk.** — *S. Afr. med. J.* **27**, 1121-1124. 2607

Infection of Africans by bovine type tubercle bacilli is rare, although TB. exists amongst cattle owned by them. In order to find a reason for this low incidence of infection, the authors studied the survival of tubercle bacilli in soured milk in calabashes, which are the utensils normally used for the storage of milk by Africans in their natural surroundings. Both human and bovine type *Mycobact. tuberculosis* were destroyed within 6 days in sour milk kept in a calabash.—R.M.

KERR, W. R., LAMONT, H. G. & MCGIRR, J. L. (1949). **Further studies on tuberculin sensitivity in the bovine.**—*Vet. Rec.* **61**, 466-475. [Authors' conclusions copied *verbatim*.] 2608

The Stormont test appears to be much more efficient than are either the Single Intradermal or the S.I.D. Comparative Tests in animals of unknown origin and history. Further, field experience indicates that this test is efficient and reliable when used for general testing purposes in tuberculosis-free herds and in herds which are being graded-up for attestation. Skin tuberculosis remains a problem and the Stormont test is no better, though no worse, than any of the other testing procedures when dealing with this condition.

The white blood cell changes (involving an increase of polymorphonuclears relative to lymphocytes) which occur as a result of the second Stormont tuberculin injection appear to be diag-

nostically reliable. Unfortunately, the maximum alteration in the polymorph: lymphocyte ratio occurs at a varying time interval after tuberculin injection, a fact which means that multiple bleeding is required. This renders the procedure unsuitable for general testing purposes though it should prove useful in particular cases in which intradermal test results are in dispute.

In a proportion of cases, tuberculin sensitivity can be transferred from tuberculous bovine to normal guinea pigs by means of white blood cells. This finding affords proof of the presence of sensitising antibody in the tuberculous animal, and, at the same time, suggests that white blood cells are directly implicated in the production of sensitivity phenomena.

White blood cell changes produced by a wide variety of stimuli, *e.g.* (a) the injection of tuberculin, (b) parturition, (c) the injection of adrenal cortical hormone, (d) the injection of sphingomyelin and (e) the injection of antigen in the sensitised animal, result in the same overall W.B.C. picture with a polymorph: lymphocyte ratio in excess of one. Each of these procedures produces an absolute or relative loss of skin sensitivity.

One very important outcome of this work is the suggestion that any procedure which produces a marked " cross-over " blood reaction results in some degree of skin desensitisation. Certain tendencies in some of this work suggest that, if a marked blood reaction occurs, densensitisation may be of relatively long duration and that the time interval which must elapse before re-testing must be subjected to considerable further investigation.

Finally, all of this work supports the thesis that white blood cells and, in particular, lymphocytes are very important factors in the manifestations of many immune phenomena.

PEREZ MATUS, M. & PONCE PACHECO, E. (1953). La hidrazida del ácido iso-nicotínico en los bovinos reaccionantes a la tuberculina. **[Effect of *iso*-nicotinic acid hydrazide on the tuberculin reaction in cattle.]** — *Proc. VIth Congr. int. Microbiol., Rome,* 1953. **1,** pp. 297-298. [In Spanish. Only abst. given. Abst. from abst.] **2609**

The authors administered *iso*-nicotinic acid hydrazide by mouth, 5 mg./kg. daily for 30 consecutive days, to 62 cattle which reacted to the subcutaneous tuberculin test. There were in addition 29 untreated controls, 12 of them reactors. After treatment there was a greater proportion of doubtful or negative reactors amongst the treated cattle than before treatment.—R.M.

OSTERTAG, W. (1954). Über das Auftreten der Vulvatuberkulose des Rindes im Anschluss an Scheidenverletzungen. **[TB. of the vulva in cows following trauma.]**—*Mh. VetMed.* **9,** 49-51. **2610**

The author reported 9 cases of TB. of the vulva following local injury in cows. Infection results from faecal contamination or through the lymph- or blood-stream.—W. R. BETT.

MASERA, N. (1952). Sul quadro istologico della intradermo-reazione tubercolinica della cavie, nelle sue fasi, per un trattamento topico con vitamina A. **[Effect of topical application of vitamin A to the skin of g. pigs on the reaction to the intradermal tuberculin test.]**—*Boll. Soc. ital. Biol. sper.* **28,** 617-619. **2611**

When i/d tuberculin tests were performed in tuberculous g. pigs, into areas of skin to which vitamin A in oil had been applied once daily for five previous days, the histological changes in the skin were less marked than in untreated skin, and the reaction evolved and regressed more slowly.—R.M.

PALLASKE, G. (1954). Beitrag zur pathologischen Anatomie der Ziegentuberkulose. **[Pathology of TB. in goats.]**—*Mh. VetMed.* **9,** 51-55. **2612**

Pulmonary TB. of goats is similar to that of cattle except that it is characterized by very well marked non-haemorrhagic cavity formation.—W. G. SILLER.

MONTI, F. (1953). Saggi terapeutici nella tubercolosi spontanea dei carnivori domestici (streptomicina-PAS-idrazide dell'acido isonicotinico). **[Treatment of TB. in dogs and cats with streptomycin, P.A.S. and *iso*-nicotinic acid hydrazide.]**—*Zooprofilassi.* **8,** 321-326, 329-338, 341-360, 385-390 & 393-409. **2613**

M. reviewed the literature on the treatment of TB. in dogs and cats with streptomycin, *p*-aminosalicylic acid, and *iso*-nicotinic acid hydrazide, and described in detail his own experiments. [See *V.B.* **24,** 24.]—R.M.

MARKS, J. (1953). **A growth factor for *Mycobacterium tuberculosis*.**—*J. Path. Bact.* **66,** 151-156. [Abst. from author's discussion and summary.] **2614**

M. studied the growth of tubercle bacilli on a medium containing 50% citrated blood or plasma. He observed that in alkaline conditions their growth was hampered or prevented by the loss of a lipoid factor to the medium. If the reproduction of tubercle bacilli depends

also *in vivo* on the concentration of a tuberculolipoid in their immediate environment or on the balance between generation and loss of the lipoid, a new approach to the problems of the pathogenesis of TB. may be possible. Damaged tissue cells are known to become more alkaline in reaction. In tissue-culture experiments which the authors will describe elsewhere, macrophages affected by lack of oxygen stained yellow with neutral red, suggesting that their pH approached 8·0. Macrophages of animals allergic to tuberculin are damaged by the ingestion of tubercle bacilli and, although evidence on the point is at present lacking, it is probable that the pH of their cytoplasm rises in consequence. Intracellular conditions might thus be made less favourable for the growth and survival of ingested bacilli. In addition, the vascular reaction to a focus of infection with tubercle bacilli which occurs in sensitized animals may discourage the growth of the bacilli by bringing them into contact with an alkaline plasma exudate. Both of the mechansims described would relate acquired immunity in TB. to allergy in a manner not previously demonstrated.

JOHNSTONE, D. B. & LITTLE, J. E. (1953). **Bacteriostatic, bactericidal, and drug resistance studies of ethyl gallate on** *Mycobacterium tuberculosis*.—*J. Bact.* **66,** 320-323. [Abst. from authors' summary.] **2615**

Ethyl gallate is bacteriostatic towards *M. tuberculosis* Strain 607, depending on the dosage used. *M. tuberculosis* can be made resistant to gallate by exposure to increasing concentrations of the drug. The resistant organisms are also cross resistant to several other esters of gallic acid. No morphological changes were observed nor loss of acid-fastness due to the presence of any of the gallates tested, with either resistant or inhibited non-resistant organisms.

GORDON, R. E. & SMITH, M. M. (1953). **Rapidly growing, acid fast bacteria. I. Species' descriptions of** *Mycobacterium phlei* **Lehmann and Neumann and** *Mycobacterium smegmatis* **(Trevisan) Lehmann and Neumann.** — *J. Bact.* **66,** 41-48. **2616**

Of 124 strains examined, 21 were identified as *M.phlei* and 56 as *M. smegmatis*. The latter species included a number of strains labelled *M. lacticola, M. graminis* and *M. butyricum*, strains originally classed as bovine or human types of tubercle bacilli, and a *Mycobacterium* isolated from a bovine udder at Weybridge.

—E. G. WHITE.

BRATKE, E. (1952). Vorkommen und Bedeutung von *Corynebacterium renale* und *pyogenes* bei der künstlichen Besamung des Rindes. [*Corynebact. renale* **and** *C. pyogenes* **in relation to artificial insemination of cattle.**] —*Berl. Münch. tierärztl. Wschr.* **65,** 247-250. **2617**

Two hundred and fifty specimens of semen, preputial swabs and washings were examined for the presence of *C. renale* and *C. pyogenes*, a detailed clin. report on 67 specimens having been obtained. *C. renale* was found in 100 of the specimens; there was no indication of its pathogenicity. *C. pyogenes* was isolated from only 5, all of which were from bulls with unsatisfactory clin. reports.

Experimental addition of *C. pyogenes* to bull semen did not affect the viability of spermatozoa.—A. MAYR-HARTING.

DE LAJUDIE, P. & BRYGOO, E.-R. (1953). Contribution à l'étude des propriétés biochemiques du bacille de Whitmore. [**The biochemical properties of** *Pfeifferella whitmori*.] —*Ann. Inst. Pasteur.* **84,** 509-515. **2618**

The authors studied 41 strains of *Pf. whitmori* isolated at the Pasteur Institute, Saigon between 1946 and 1952. They described in detail the salient features of its biochemical and metabolic characters, noteworthy being that it is a facultative anaerobe, grows in yeast broth, can usually utilize sodium citrate as a source of carbon, forms a typical film on liquid media, but is inactive on polyalcohols. It is reducing and proteolytic, peptonizes milk without clotting, produces catalase and a haemolysin, but does not produce either coagulase or acetone.

—G. P. MARSHALL.

I. LEONHARDT, H. (1950). Vorläufige Mitteilung über Beobachtungen an Rotlaufserum vom Schwein. [**Preliminary communication on homologous swine erysipelas anti-serum.**] —*Mh. VetMed.* **5,** 298. **2619**

II. SAXINGER, G. (1951). Über die Verträglichkeit und Wirksamkeit von artgleichem und artfremdem Rotlaufserum bei Schweinen. [**Comparison of tolerance and effect of homologous and heterologous swine erysipelas serum. (In reply to H. Leonhardt.)**]—*Ibid.* **6,** 357-359. **2620**

Discussion on the question of whether swine erysipelas antiserum prepared in pigs is more rapidly effective when given to pigs than is heterologous serum. L. contested this claim and S., writing from a production centre, defended it.—G. P. MARSHALL.

WIIDIK, R. W. (1952). Die wissenschaftlichen Grundlagen der aktiven Immunisierung gegen den Schweinerotlauf mit dem schwedischen avirulenten Impfstoff. [**The scientific principles of active immunization against swine erysipelas with avirulent vaccine.**] — *Mh. prakt. Tierheilk.* **4,** 145-161; 205-210. 2621

White mice inoculated i/p with 0·005 and 0·01 ml. of a Swedish avirulent *E. rhusiopathiae* vaccine prepared from strain AV/R9 (Stockholm) were resistant after 6 days to a million m.l.d. of the original virulent strain R9 used in the preparation of the vaccine, and after 11 days they were resistant to 10 million m.l.d. of that strain. They also withstood challenge with 100 heterologous virulent strains of *E. rhusiopathiae* belonging to serological groups A and B.

W. stated that young cultures were bad antigens and even set up infection. He discussed the possible mode of action of the vaccine.—G. P. MARSHALL.

OLSON, C., JR., ROLLINS, C. L., BAGDONAS, V., BLORE, I. C. & SEGRE, D. (1953). **Distribution of *Listeria monocytogenes* in listeriosis of sheep.**—*J. infect. Dis.* **93,** 247-256. [Abst. from authors' summary.] 2622

Culture of different parts of the brain and spinal cord and of the visceral organs from 67 sheep naturally infected with *Erysipelothrix* (*Listeria*) *monocytogenes* and from 33 experimentally infected sheep, revealed 3 general patterns or types of distribution of the organisms: (1) in most of the natural cases the organism was present in the brain but not in the visceral organs; (2) in most of the experimental cases the organism was present in both the brain and viscera; (3) in a few cases in each group the organism was present in the viscera or in the spinal cord but not in the brain. In experimentally infected pregnant ewes [stage of pregnancy not stated] abortion occurred in 7–11 days, the foetus being decomposed and the organism being isolated from every tissue examined; abortion did not occur in a natural outbreak involving pregnant ewes and the organism could not be recovered from foetal tissues.

CARTER, G. R. & BIGLAND, C. H. (1953). **Dissociation and virulence in strains of *Pasteurella multocida* isolated from a variety of lesions.** — *Canad. J. comp. Med.* **17,** 473-479. 2623

Twenty - eight strains of *Past. septica* (*multocida*) from a variety of lesions were examined. There was definite correlation between the dissociants and mouse virulence. Twelve cultures were identified as Type B and three as Type A by precipitation and capsular swelling tests. Mucoid variants were usually associated with chronic processes. M. strains showed autolysis.—R. GWATKIN.

CLAPHAM, P. A. (1953). **Pseudotuberculosis among stock-doves in Hampshire.** [Correspondence.]—*Nature, Lond.* **172,** 353. 2624

C. recorded an outbreak of *Pasteurella pseudotuberculosis* infection in stock doves. Deaths were common, but other species in the area did not become seriously affected. The infection is common in rodents but did not appear so in this case.—W. S. MARSHALL.

TUCKER, E. W. (1954). **Studies on bovine udder infection with *Pseudomonas aeruginosa* and other closely related organisms.**—*Cornell Vet.* **44,** 110-124. 2625

A report on infection of the udder with *Ps. pyocyanea* and other Gram-negative and non-lactose-fermenting rods mostly of the genus *Paracolobactrum*. The use of a surface streak method of culturing fresh samples of foremilk revealed that their presence in the milk is periodic, high counts usually preceding clinical attacks. T. described work done in field outbreaks and discussed various cases. Of 119 cases given local applications of neomycin sulphate in water-in-oil emulsion or ointment base, 47 recovered. Of 81 treated with polymyxin B, 31 recovered. Of 37 given a combination of these drugs with dihydrostreptomycin sulphate, 20 recovered. Attempts to determine the source of infection and the mode of spread failed.—F.E.W.

BAKOS, K. (1953). Weitere Untersuchungen über die Antigenstruktur des *Haemophilus suis*. [**Antigenic structure of *Haemophilus suis*.**]—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 64-67. [In German. English and French summaries.] 2626

One hundred and twenty strains of *H. suis* could be placed in 5 serological groups. Groups A and D came from the lungs of porcine enzootic pneumonia cases, group B from young pigs with polyarthritis, and groups C and N included strains from both conditions. Haemagglutinins were very variable in the intensity and range of their haemagglutinating activity.—R. B. HOLCOMBE.

TAYLOR, L. W., GUNNS, C. A., GRAU, C. R. & LEPKOVSKY, S. (1953). **Effect of a respiratory disease on reproduction.**—*Poult. Sci.* **32,** 129-137. 2627

The authors investigated reduction in the quality and hatchability of eggs which occurred in an outbreak of an atypical form of fowl coryza (*Haemophilus gallinarum* infection).

—C. C. BANNATYNE.

MAINKA, H. (1952). Über das Vorkommen von *Bacterium coli* in verschiedenen Darmabschnitten bei Schlachtschweinen unter Berucksichtigung der toxischen Eigenschaften des Darminhalts verschiedener Darmabschnitte. **[Incidence of *Bact. coli* in different parts of the intestine of slaughter pigs and the toxicity of intestinal contents.]**—*Inaug. Diss., Munich.* pp. 47. **2628**

Of 100 pigs slaughtered at an abattoir, *Bact. coli* was present in the bile of 6, in the duodenum of 52, in the ileum of 92 and in the rectum in all cases. S/c inj. of infected unfiltered intestinal content suspended in normal saline produced septicaemia in mice and killed them in 2–6 days, whereas filtrates were non-toxic.—E. G. WHITE.

ØRSKOV, F. (1953). **Antigenic relationship between H antigens 1-22 of *E. coli* and Wramby's H antigens 23W-36W. 11 new H antigens : 23-33.** — *Acta path. microbiol. scand.* **32,** 241-244. [In English.] **2629**

In cross agglutination experiments with sera and *Bact. coli* H antigens 1–22 of Kauffmann and H antigens 23–36 of Wramby (1948), the author found that antigens 24, 29 and 36 were identical with or closely related to antigens in the 1–22 series, but he confirmed that the remainder of Wramby's strains were new antigens and numbered 23–33 respectively.

—A. H. LINTON.

EDWARDS, P. R. & EWING, W. H. (1954). **Studies on a coliform type isolated from the organs of fowls.**—*Cornell Vet.* **44,** 50-56. [Authors' summary and addendum modified.] **2630**

Thirty cultures isolated from the internal organs of fowls which had died in widely separated areas in the U.S.A. were found to belong to a single biochemical variety of *Bact. coli* O2:K1:H5. This type was not found among 200 cultures from the intestines of fowls and other domestic animals, nor in the stools of food handlers or persons affected with diarrhoea. The organism seemed to have a tendency to invade the tissues of fowls and, in some instances, to produce infection.

In an *addendum* note the authors stated that F. Kauffmann had in his collection a strain (Su 3963) with the same antigenic formula, which had been isolated from an abscess in a human being. The latter was toxic for mice and on i/d inoculation into rabbits produced a slight necrosis of the skin.

THAL, E. (1953). Eine bisher nicht determinierte Gruppe in der Familie Enterobacteriaceae. **[A group of strains, not previously determined, belonging to the family Enterobacteriaceae.]**—*Nord. VetMed.* **5,** 443-446. [In German. English and Swedish summaries.] **2631**

Routine bacteriological examination of sepsis due to " coliform " organisms in the organs of various animal species (not specified) that had died, led to the frequent isolation of a group of strains in pure culture, here called " 455 ", which had not previously been determined. T. gave an account of the morphology, cultural and biochemical characteristics and of the pathogenicity of this group for white mice.—R. B. HOLCOMBE.

EDWARDS, P. R., BRUNER, D. W. & MORAN, A. B. (1948). **The genus *Salmonella*: its occurrence and distribution in the United States.**—*Bull. Ky agric. Exp. Sta.* No. 525. pp. 3-60. **2632**

A brief introductory survey was made of work on *Salmonella* in the U.S.A.

The authors reported on the serological typing of 12,331 cultures of salmonella, isolated from 1934-47, from a wide variety of animals and from human beings throughout the U.S.A., and to a small extent elsewhere. The cultures were isolated from 47 different species including man and reptiles, and from water, sewage, eggs, egg powder and food products, the frequency of occurrence and zoological distribution of each salmonella type as to number of outbreaks and cultures examined being shown in tables.

—F. T. W. JORDAN.

BISCHOFF, H. (1953). Die in den Jahren 1950-1953 in der Veterinär-Untersuchungsanstalt Hamburg festgestellten Salmonellosen. **[*Salmonella* infections diagnosed by the Veterinary Research Institute, Hamburg, during 1950-53.]**—*Berl. Münch. tierärztl. Wschr.* **66,** 406-407. [English summary.] **2633**

Salmonella were isolated from 849 out of 9,645 carcasses of different species of animals slaughtered for food and examined bacteriologically during 1950–53; of these, 828 were *S. dublin*, this being a marked increase over the pre-war figure for the same abattoirs.

—W. G. SILLER.

TOBA, A & SHIGA, K. (1953). **Immunological study on bacterial body constituents of** *Salmonella abortivo-equina*.—*Exp. Rep. Govt. exp. Sta. anim. Hyg. Tokyo.* No. 26. pp. 71-89. [In English.] 2634

The authors studied the role of the somatic constituents of *S. abortus-equi* in the development of immunity. The polysaccharide fraction is toxic and corresponds to the O antigen. The fever and the formation of focal lesions in the liver which occur in salmonella infection appear to be caused by polysaccharide and phosphatide fractions.

—KOGI SAITO.

OLSON, B. H. & JENNINGS, J. C. (1954). **Effect of synnematin B treatment of** *Salmonella* **infections in mice and chicks.** — *Antibiot. & Chemother.* **4,** 11-17. [Spanish summary pp. 108-109. Abst. from authors' summary.] 2635

Mice infected with *S. typhi-murium* were freed from infection by treatment with synnematin B (a product of the mould, *Tilachlidium*) injected s/c. It also effectively countered lethal doses of *S. typhi* in mice, whereas in infected controls treated with aureomycin the organs of 56% were found to be infected at P.M. examination. Chicks infected with *S. pullorum* were freed from the infection.

DI GIACINTO, I. (1953). Importanza della pluralità antigene dei ceppi di *S. pullorum* nella diagnosi di pullorosi a mezzo dell' emoagglutinazione rapida. **[Value of polyvalent antigen for the rapid slide agglutination test for** *S. pullorum* **infection.]**—*Clin. Vet. Milano.* **76,** 137-140. 2636

The authors stated that antigen for the rapid slide test for *S. pullorum* infection should be polyvalent.—I. W. JENNINGS.

HALL, W. J., LEGENHAUSEN, D. H. & MACDONALD, A. D. (1949). **Studies on fowl typhoid. I. Nature and dissemination.**—*Poult. Sci.* **28,** 344-362. 2637

A general account of fowl typhoid as seen in the U.S.A. The seasonal incidence is related to the seasonal increase in egg output in the warmer season. In very large-scale tests with eggs it was found that the egg of the infected bird was an important infective agent. The extent to which birds laid infected eggs was studied. Transmission experiments were undertaken to study the relative importance of the contaminated pen itself, the infective bird and the extent to which healthy birds were reactors. *S. gallinarum* apparently loses virulence rapidly after it has been excreted.—F. T. W. JORDAN.

GORDEUK, S., JR., GLANTZ, P. J., CALLENBACH, E. W. & THORP, W. T. S. (1949). **Transmission of fowl typhoid.**—*Poult. Sci.* **28,** 385-391. 2638

The experimental procedure included:—

Cohabitation of susceptible and actively infected birds; the feeding of susceptible birds with virulent cultures of *Salmonella gallinarum* in the mash, and this repeated for other birds in the drinking water; the addition to the drinking water of susceptible birds of faeces from birds with typical symptoms of fowl typhoid; repeating the above with faeces added to the mash of a group of susceptible birds.

Attempts to isolate a 'phage from five birds inoculated intramuscularly with *S. gallinarum* failed.—F. T. W. JORDAN.

GRUMBLES, L. C., WILLS, F. K. & BONEY, W. A., JR. (1954). **Furazolidone in the treatment of fowl typhoid in turkeys.**—*J. Amer. vet. med. Ass.* **124,** 217-219. [Authors' summary modified.] 2639

Furazolidone [N-(5-nitro-2-furfurylidene)-3-2-oxazolidine] administered in the food at levels of 0·011% and 0·0055% was found to be effective in preventing mortality associated with *Salmonella gallinarum* infection in turkeys, the 0·011% level being found more effective in severely infected birds. No evidence of toxicity or unpalatability of the medicated food was encountered. Exposed and treated birds were shown to be susceptible to reinfection and to be carriers of *S. gallinarum*.

REITLER, R. (1953). **Salmonellosis in migratory birds** (*Sturnus vulgaris*).—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. **3,** pp. 253-254. [In English. Only abst. given. Abst. from abst.] 2640

R. isolated a species of salmonella belonging to Group B, but not yet identified, from starlings found dead in the Jordan valley, Israel. The starlings had migrated from Europe for the winter.—R.M.

NÉEL, R., LE MINOR, L. & KAWEH, M. (1953). Une nouvelle espèce de *Salmonella* isolée chez un corbeau (*Corvus corax*): *S. hessarek*. **[A new salmonella species isolated from a crow,** *S. hessarek*.]—*Ann. Inst. Pasteur.* **85,** 271-274. 2641

The authors isolated from a dead crow a *Salmonella* having the antigenic formula IV, XI - a - 1, 5 and named it *S. hessarek*.—D. LUKE.

BOYCOTT, J. A., TAYLOR, J. & DOUGLAS, S. H. (1953). **Salmonella in tortoises.**—*J. Path.*

Bact. **65,** 401-411. [Authors' summary modified.] 2642

Seventeen species of *Salmonella* were isolated from 11 tortoises (*Testudo graeca*) and from two pools of larger numbers; all had been imported from Morocco. No salmonella were isolated from two young tortoises hatched in Gt. Britain nor from six individuals of unknown origin representing four species of the same genus. Several of the species of salmonella had not been isolated before in Gt. Britain; six had not been described previously. The high carrier rate of salmonella in imported tortoises may be due to infection in transit. No evidence of human or animal infection from this source has been found.

NIELSEN, F. W. (1953). La lutte entreprise au Danemark contre l'avortement épizootique du bétail. **[Control of bovine brucellosis in Denmark.]**—*Bull. Off. int. Epiz.* **39,** 619-625. 2643

N. stated that a quarter of the herds in Denmark are infected with brucella. For control routine blood and milk tests are carried out and abortions have to be notified. The cost of the veterinary service done is met by the state. Infected animals are kept in isolation and Strain 19 vaccine is used for healthy stock. The control of brucella infection is organized in the same zones as for TB.—E. J. L. SOULSBY.

ANON. (1954). **Report of Committee on Brucellosis.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 144-147. 2644

The committee on brucellosis of the U.S. Livestock Sanitary Association recommended that lyophilized vaccine should replace liquid Strain 19 *Br. abortus* vaccine. They also made recommendations concerning legislation for the establishment and maintenance of certified brucellosis-free herds of cattle, and the movement of cattle between states.—R.M.

ANON. (1951). Brucelosis. Higiene y medicina preventiva. **[Hygiene and prophylaxis in brucellosis.]**—*Bol. Ofic. sanit. panamericana.* **30,** 265-272. 2645

This is a discussion on various aspects of brucellosis.—I. W. JENNINGS.

ROEPKE, M. H. (1954). **Nonspecific agglutination reactions for brucella.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 117-123. 2646

A report on the work of Hess & Roepke [*V.B.* **22,** 943 & **24,** 2253] on the demonstration of a non-specific brucella-agglutinating substance in bovine serum by means of paper chromatography.—R.M.

BRAUN, W. & KELSH, J. (1954). **Improved method for cultivation of *Brucella* from the blood.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 154-157. 2647

Laked blood samples are passed through membrane filters; the membrane is then placed on the surface of a solid medium in a Petri dish. —F.E.W.

ALIVISATOS, G. P. & EDIPIDES, T. (1953). **Reaction of goat's milk with stained antigens in the detection of brucellosis.**—*Bull. World Hlth Org.* **9,** 871-876. [French summary. Abst. from authors' summary.] 2648

The ring test with milk from 206 goats for brucella infection and the tube agglutination test with their blood serum were carried out. In most cases the reactions with the two tests agreed. It was pointed out that it is the agglutination of the stained antigen which is the principal sign of a positive reaction rather than ring formation, which is very irregular. Haematoxylin antigen was generally more reliable than Bendtsen antigen, but with either, the results should be read after 1–2 hours' incubation at 37°C.

NIŽNÁNSKY, F., ODLER, I. & ORAVEC, C. (1953). Príspevok k epidemiologii brucelózy l'udí v ČSR. **[Epidemiology of brucellosis in man in Czechoslovakia.]**—*Veterinářství, Brno.* **3,** 270-271. 2649

An account of a survey of brucella antibodies in farm workers exposed to infection by contact with infected animals. Agglutination and complement-fixation tests were made: 11·4% of the total of almost 1,300 specimens were positive with the latter test and 8·6% with the former. The authors ascribed this discrepancy to blocking antibodies interfering in the agglutination test. None of the persons whose blood was positive gave a history of a recognized clinical brucella infection. —A. MAYR-HARTING.

GARGANI, G. (1952). Sensibilità della cavia a piccole cariche infettanti di *Br. melitensis* in rapporto alla sua utilizzazione nelle prove biologiche. **[The minimum infective dose of *Br. melitensis* for g. pigs]** — *Clin. Vet., Milano.* **75,** 261-270. 2650

In order to determine the reliability of g. pig inoculation in the laboratory diagnosis of *Br. melitensis* infection, G. inoculated 40 g.

pigs s/c with graduated dilutions of *Br. melitensis* culture in saline or in milk. Twenty organisms were sufficient to produce a positive c.f. test in g. pigs up to 10 weeks after infection.
—G. P. MARSHALL.

SANDERS, T. H., HIGUCHI, K. & BREWER, C. R. (1953). **Studies on the nutrition of** *Brucella melitensis*.—*J. Bact.* **66,** 294-299. **2651**

The nutritional requirements of Strain 4247 *Br. melitensis* were studied. By an elimination technique a minimum synthetic medium giving constantly good growth was evolved. It consisted of six amino acids, glucose (2·5%) salts of magnesium, iron and manganese, thiamine and nicotinic acid. Autolysed yeast stimulated early growth.—C. C. BANNATYNE.

VAN DER HOEDEN, I., HALEVI, C. & DAFNI, I. (1952). **[Outbreak of leptospirosis in cattle in Israel in 1949.]**—*Refuah Vet.* **9,** 65-73. [Abst. from English summary p. 100.] **2652**

An account of leptospira infection in a herd of cattle, with details of the agglutination reaction. The authors suggested that the infection can be spread by voles.—A. H. LINTON.

HEUSSER, H., GSELL, O., KANTER, U. & WIESMANN, E. (1948). Die periodische Augenentzündung der Pferde als Leptospirenerkrankung. **[Equine periodic ophthalmia, a leptospirosis.]**—*Schweiz. med. Wschr.* **78,** 756-761. **2653**

A report on agglutination tests on the blood serum of (a) 263 horses affected with equine periodic ophthalmia (89 acute, 66 subacute and 108 established cases), of (b) 91 horses with other eye diseases, and of (c) 291 healthy controls, using 9 types of leptospira antigen, a titre of 1:400 or over being regarded as positive. In group (a) 112 horses were reactors; 73 of the acute cases included 44 reactors to *L. grippo-typhosa,* 17 to *L. pomona,* 11 to *L. australis,* one to *L. icterohaemorrhagiae*; 58 of the subacute cases (29 reacting to *L. grippo-typhosa,* 17 to *L. pomona,* 11 to *L. australis,* one to *L. sejroe*); 75 of the old cases (50 to *L. grippo-typhosa,* 15 to *L. pomona,* 11 to *L. australis,* 4 to *L. icterohaemorrhagiae*). In group (b) 12 were reactors (4 to *L. grippo-typhosa,* one to *L. pomona,* one to *L. australis* and 6 to *L. icterohaemorrhagiae*). In group (c) 47 were reactors (25 to *L. grippo-typhosa,* 2 to *L. pomona,* 4 to *L. australis,* 3 to *L. sejroe* and 13 to *L. icterohaemorrhagiae*). Of the 49 reactors to *L. pomona* in group (a), 35 were from St. Gallen, Thurgau and Zürich—areas where swineherd's disease occurs in man.
—F.E.W.

BOHL, E. H. & FERGUSON, L. C. (1952). **Leptospirosis in domestic animals.**—*J. Amer. vet. med. Ass.* **121,** 421-428. **2654**

The authors investigated the incidence of leptospirosis in Ohio by means of serological tests. Antibodies for *L. pomona* were demonstrated in horses, cattle and pigs; those for *L. icterohaemorrhagiae* in rats, dogs, pigs and cattle; and those for *L. canicola* in dogs and horses. Transmission of *L. pomona* infection appeared to occur between pigs and cattle. Equine periodic ophthalmia appeared to be associated with infection with *L. pomona.* An extensive bibliography was given.
—E. A. GIBSON.

EUZÉBY, J. (1952/53). Les leptospiroses du chien. **[Leptospirosis in dogs.]**—*Bull. Soc. Sci. vét. Lyon.* **54 & 55.** 229-248. **2655**

A conventional account of leptospirosis in dogs with a note on transmission to human beings.—G. V. LAUGIER.

VERMA, N. S., RAU, K. G. & GOVIL, J. L. (1953). **On the economics of papain liver digest broth medium for the cultivation of** *Clostridium chauvoei* **and** *Clostridium septicum.* **Part I.**—*Indian vet. J.* **30,** 33-39. **2656**

Papain liver digest broth, preferably with the addition of ox heart muscle broth, is comparatively cheap and suitable for growing organisms for vaccine production.
—R. N. MOHAN.

GUILLAUMIE, M., KRÉGNER, A., GEOFFROY, M. & READE, G. (1953). Antigènes communs aux toxines septicum et histolyticum. **[Antigens common to the toxins of** *Cl. septicum* **and** *Cl. histolyticum.***]**—*C. R. Acad. Sci. Paris.* **236,** 429-432. **2657**

Serum from horses hyperimmunized with *Clostridium septicum* toxin neutralizes the necrotizing toxin of *Cl. histolyticum* and *vice versa,* though the titre against the heterologous toxin may be low. A course of heterologous toxin may stimulate antibody production in horses responding poorly to the homologous one. Hyperimmunization with *Cl. septicum* toxin fails to produce antibodies against *Cl. histolyticum* haemolysin, collagenase or gelatinase.
—J. E. SMITH.

ANDERSON, E. H. (1950). Bacillary hemoglobinuria (red water disease) i Chile. Et toxoid-adsorbat til dens bekaempelse. **[Bacillary haemoglobinuria in Chile.]**—*Nord. VetMed.* **2,** 688-696. [English and German summaries. Abst. from English summary.] **2658**

The author discussed the literature on haemoglobinuria caused by *Clostridium haemolyticum* in cattle and, occasionally, in sheep in Chile. It is widely distributed between the 27th and 40th parallels of latitude, most cases occurring during late summer and autumn, especially in mountain valleys, artificially irrigated areas and areas where the soil is humid. Adult cattle are more susceptible than calves. Vaccination confers an immunity lasting about 6 months.

He gave details of the tests in mice with *Cl. haemolyticum* toxin adsorbed on to aluminium hydroxide gel. Toxoid injected into a small number of cattle caused a rise in agglutination titre of the blood serum for a few months.

GLIGORIJEVIĆ, J. & TVORIĆ, S. (1953). Uticaj terapeutskih doza ultrazvuka na toksin tetanusa. **[Effect of ultrasonic waves on tetanus toxin.]**—*Vet. Glasn.* **7**, 647-653. [In Croat. German summary.] 2659

After exposure to ultrasonic waves (field intensity 1·5–3 W/cm^2; 800–3000 kc.) for 9–25 min., the potency of tetanus toxin was reduced for laboratory animals, but it was not completely inactivated.—R.M.

HALE, W. M. & STONER, R. D. (1953). **Formation of tetanus antitoxin by spleen and lymph node intraocular transplants.**—*Yale. J. Biol. Med.* **26**, 46-54. 2660

Spleen and lymph-node tissue removed from immunized mice and transplanted into the anterior chamber of the eye of mice within one to three hours of gamma irradiation, causes the production of tetanus antitoxin. Intravenous injection of tetanus toxoid into such mice more than doubles the amount of antitoxin produced.
—W. R. BETT.

EALES, C. E. & TURNER, A. W. (1952). **Description of *Clostridium botulinum* Type D recovered from soil in South Australia.**—*Aust. J. exp. Biol. med. Sci.* **30**, 295-300. [Abst. from authors' summary.] 2661

The authors isolated a pure strain of *Cl. botulinum* Type D from an old toxic culture obtained by L. B. Bull [1924, unpublished work] from a sample of soil from South Australia. They described the morphological and cultural characters of the strain. The identity of the organism was confirmed by toxicity and neutralization tests and by comparison with a classical strain. The rarity of toxinogenic isolates from apparently pure cultures of the Australian strain indicates a high mutation rate towards loss of toxin formation.

THOUVENOT, H. & FLORENT, A. (1954). Étude d'un anaerobie du sperme du taureau et du vagin de la vache, *Vibrio bubulus* Florent 1953. **[*Vibrio bubulus* from the semen of the bull and the vagina of the cow.]**—*Ann. Inst. Pasteur.* **86**, 237-241. 2662

The authors described a vibrio which they isolated from the semen of 4 apparently healthy bulls. It differed in several characters from the 11 species already described: it was a strict anaerobe, non gas-forming, and fell into group A. They proposed to name it *V. bubulus*. They emphasized the necessity of differentiation between this organism and *V. fetus*, the former being apparently non-pathogenic.—J.D.

FLATLA, J. L., BRAEND, M. & SUDBOE, A. (1952). **Some observations on *Vibrio foetus* infection in cattle.**—*Rep. IInd Int. Congr. Physiol. anim. Reprod., Copenhagen*, 1952. **3**, 140-148. [In English. French and German summaries. Abst. from authors' summary.] 2663

In recent years enzootic sterility has rather suddenly become a problem in Norway. In some mating trials of virgin heifers with bulls suspected of carrying *V. fetus* infection, the organism was recovered from the vaginal mucus of the heifers, this being the first time it had been found in Norway. It has since been recovered from a considerable number of aborted foetuses.

Abortion was produced in one of 2 pregnant heifers after an incubation period of 42 days following i/v inj. of culture. A heifer pregnant 6 months fed on large doses of culture did not abort. Two virgin heifers inseminated with semen infected with culture became temporarily infertile. The blood serum agglutinin titre of cows that aborted as a result of infection dropped to negative after 3–5 months in most cases and that of vaginal mucus usually became negative a month or two later.

V. fetus has been cultivated from the prepuce and semen of several infected bulls and also from semen after storage for up to 6 days at +4°C.

In vitro tests of the sensitivity of several strains of *V. fetus* to penicillin, streptomycin, dihydrostreptomycin, chloramphenicol, aureomycin and terramycin showed that the organism was sensitive in varying degree to these antibiotics. It seemed to be especially sensitive to terramycin.

Parenteral penicillin treatment with large doses seemed to be effective in controlling the infection in bulls, but local treatment using only penicillin ointment was of doubtful value.

Terramycin ointment alone, however seemed promising as a local treatment of the penis and prepuce.

ROTHENBERG, N. A. (1953). **A new intramammary treatment for mastitis.**—*N. Amer. Vet.* **34,** 775-777. **2664**

R. used mercosterol (a mercuriated sterol containing 0·0075% Hg) for the treatment of 52 cows comprising 20 with " streptococcal ", 27 with staphylococcal, 3 with *Bact. coli* mastitis and 3 with mastitis not bacteriologically determined. Excellent results were obtained in 49 of the animals by instilling 10 ml. of the preparation once or twice daily into the affected quarter for an average period of 3 days. The 3 cases which failed to respond were staphylococcal infections of long standing.

—G. P. MARSHALL.

EMMONS, C. W. (1951). **Isolation of *Cryptococcus neoformans* from soil.**—*J. Bact.* **62,** 685 - 690. [Author's summary modified.] **2665**

Four strains of *C. neoformans*, one of which gave rise to a highly mucoid variant, were isolated from soil by inoculation of mice with soil samples. These strains were compared with 3 strains from human cases and with the original Sanfelice strain. They were typical, producing acid slowly in glucose, laevulose, mannose, and sucrose and were virulent for mice.

TERPSTRA, J. I. (1953). Pleuropneumonieachtige lichaampjes en steriliteit. **[Pleuropneumonia-like organisms and sterility in cows.]**—*Tijdschr. Diergeneesk.* **78,** 617-624. [English, French and German summaries.] **2666**

Pleuropneumonia-like organisms (P strain) were isolated from vaginal secretions of heifers and cows in 2 herds and from some sporadic cases of sterility. The presence of the organisms did not appear necessarily to be associated with disease, though some of the animals had vaginitis and some had aborted: some infected virgin heifers had vaginitis. Of two cows infected with culture *per vaginam*, one developed vaginitis and recovered spontaneously.

—C. A. VAN DORSSEN.

HENNESSEN, W. (1951). Veränderungen an gramnegativen Stäbchen unter Mangelbedingungen. **[Changes in Gram-negative bacteria caused by deficiency conditions.]**—*Z. Hyg. InfektKr.* **133,** 561-568. **2667**

Electron photomicrographs of certain Gram-negative bacteria growing in low protein and nitrogen-free culture media were found to show that, in the conditions in which they were growing, there were indications of the presence of nuclear material.—CHARLOTTE M. WOOD.

ENGLESBERG, E. (1952). **The mutagenic action of formaldehyde on bacteria.**—*J. Bact.* **63,** 1-11. **2668**

E. demonstrated that formaldehyde was capable of inducing the formation of mutants of *Pseudomonas fluorescens* and *Bacterium coli* by exposing cultures for 15 min. to various concentrations. He indicated the advantages of formaldehyde as a mutagenic agent as compared with other chemicals.—A. H. LINTON.

See also abst. **2874** (bacterial and fungous diseases of the camel).

DISEASES CAUSED BY PROTOZOAN PARASITES

MORNET, P. (1953). Carte de répartition des trypanosomes - pathogènes des animaux domestiques en A.O.F. **[A map showing the distribution of trypanosomes pathogenic for animals in French West Africa.]**—*Bull. Soc. Path. exot.* **46,** 308-311. **2669**

The distribution of four species of trypanosomes was ascertained. M. discussed the difficulty of showing this information on a map. *T. vivax* has the widest distribution corresponding to the normal habitat of zebu and zebu-cross unhumped cattle. *T. evansi* is limited to the breeding areas of the dromedary. *T. brucei* and *T. congolense* are found in the tsetse regions.

—S. F. M. DAVIES.

RAY, H. N. & BHASKARAN, R. (1953). **Chemical tests in bovine surra.**—*Indian vet. J.* **30,** 236 - 240. [Abst. from authors' summary.] **2670**

The authors discussed the value of the various chemical diagnostic methods used for detecting latent trypanosomiasis (*T. evansi*) in cattle. They found that for all practical purposes the stilbamidine test described by Ray [*V.B.* 21, 2259] is as dependable as the complement-fixation test. Other tests such as the formol gel, mercuric chloride and nitric acid tests gave variable results. Just as camel trypanosomiasis can be detected earlier by Bennett's mercuric chloride test than by the c.f. test, the stilbami-

dine test could fulfil the same purpose in most cases of surra in cattle.

DHILLON, H. S. (1953). **A latent case of bovine surra at Mukteswar diagnosed by Ray's M.B.744 test.**—*Indian vet. J.* **29**, 242-243. 2671

In parallel tests on the sera of 12 apparently healthy hill bulls, using the complement-fixation reaction and the stilbamidine test described by Ray [*V.B.* **21**, 2259] a sample from one bull gave a positive reaction to the latter test while negative to the c.f. test. An allergic test was also negative. Rats and rabbits inoculated with blood from the bull all died and trypanosomes were present in their blood. Work on a larger scale is needed.—R. N. SETH.

BARRETT, P. A., CURD, F. H. S. & HEPWORTH, W. (1953). **The synthesis of trypanocides. I. Some pyrimidylaminoquinoline derivatives. 4-Amino-6-(2-amino-1:6 dimethylpyridinium-4-amino)1:2-dimethylquinolinium (" antrycide ") salts and related compounds.**—*J. chem. Soc.* Jan. 1953, 50-58. 2672

AINLEY, A. D., CURD, F. H. S., HEPWORTH, W., MURRAY, A. G. & VASEY, C. H. (1953). **The synthesis of trypanocides. II. 4-Amino-6-(2-amino-1 : 6 dimethylpyrimidinium-4-amino)-1:2-dimethylquinolinium (" antrycide ") salts and related compounds.**—*Ibid.* 59-70. 2673

I. The authors described a series of compounds in which pyrimidine derivatives containing amino, chloro and methyl groups are linked to a substituted quinoline nucleus by a 6-amino group in the latter. In addition they described the action of methyl iodide on the pyrimidylaminoquinolines, which produced compounds identical with those obtained by condensing the corresponding quaternary 6-amino-1-methylquinolinium salts with the appropriate chloropyrimidine.

II. Prolonged treatment of 4-amino-6-(2-amino-6-methyl-4-pyrimidyl-amino)-2-methylquinoline with methyl iodide gave a product of high trypanocidal activity. The product obtained was mainly 4-amino-6-(2-amino-6-methyl-4-pyrimidylamino)-1 : 2-dimethyl quinolinium iodide but the mother-liquor contained a highly active contaminant, the identification, unambiguous synthesis and purification of which as 4-amino-6-(2-amino-1:6-dimethylpyrimidinium-4-amino)-1 : 2-dimethylquinolinium chloride (antrycide) the authors described.

—J. M. LEACH.

MASTROPIETRO, A. (1953). Segnalazione del primo caso di leishmaniosi del cane a Campobasso. [*Leishmania* **infection in a dog in Campobasso, Italy.**]—*Zooprofilassi.* **8**, 415-418. [English, French and German summaries.] 2674

This is a report on clinical and P.M. findings in an isolated case of generalized leishmaniasis in a two-year-old dog from a district in which cases of visceral and cutaneous leishmaniasis in man were known to have occurred.

—E.G.

FITZGERALD, P. R., HAMMOND, D. M. & MINER, M. L. (1954). **The survival and transmission of *Trichomonas foetus* in diluted bovine semen.** — *Amer. J. vet. Res.* **15**, 36-40. [Authors' summary modified.] 2675

In 14 trials with *Tr. foetus* from cultures, the av. duration of survival in egg yolk buffer mixtures with sulphanilamide, penicillin, and streptomycin at 39°F. was 5·9 days. In 3 trials under similar conditions, except that semen was present and examination for trichomonads was made by the cultural method, the av. duration of survival of *Tr. foetus* was 8·7 days, while the average duration of spermatozoan activity was 7·3 days. In 7 trials with *Tr. foetus* from vaginal samples, the average duration of survival was 9·6 days. There was little difference in the duration of survival of trichomonads in the buffer mixtures which contained streptomycin, penicillin, and sulphanilamide and those which contained only sulphanilamide. Trichomonads survived longer in culture medium than in the buffer mixtures, for about the same periods in saline soln. when cultures were used as the source of trichomonads, but distinctly shorter periods in saline soln. or in undiluted vaginal fluid when trichomonads came from vaginal samples.

When semen from an infected bull, diluted 1:15 in egg yolk buffer mixture containing sulphanilamide, streptomycin, and penicillin was used to inseminate 32 females, infection occurred and the rate of conception was similar to that for uninfected bulls.

FAUSTINI, R. & ZAVAGLIO, V. (1952). Azione *in vitro* della gonacrina miscela [3-6-diamino-10-metilacridina (60%) e 3-6-diamino-acridina (40%)], dell'etere 2-4-diguanidinfenil-laurilico dicloridrato e loro associazione sul *Trichomonas foetus.* [**Action of acriflavine and other drugs and antibiotics on *Tr. foetus in vitro*.**]—*Arch. Vet. Ital.* **3**, 45-52. [English, French and German summaries. Abst. from English summary.] 2676

A synthetic cationic detergent, " P_7 " (2-4-di-guanidinophenyl-lauryl-dihydrochloride)

was the most effective of the various drugs and antibiotics tested *in vitro* against *Tr. foetus*. "Gonacrine" (acriflavine) was the next most effective. There was notable synergism between these two drugs.—BERYL A. KAY.

MENOLASINO, N. J. & HARTMAN, E. (1954). **Immunology and serology of some parasitic protozoan flagellates. I.** *Trichomonas vaginalis* **and** *Trichomonas foetus*.—*J. Immunol.* **72,** 172-176. [Authors' summary modified.] **2677**

The authors found that the serological techniques applied to bacteria are not applicable to the study of flagellate protozoan parasites. Simple fractionation of the cells of *Tr. vaginalis* and *Tr. foetus* yielded (1) a specific, high titre somatic agglutinin, (2) a specific posterior flagellar agglutinin of moderate titre, (3) an antibody, or possibly a complex of antibodies, capable of causing the rounding, granulation, and ultimate fragmentation of these organisms, after inactivation of the antiserum at 56°C. for 30 min., and (4) an antibody, or possibly a complex of antibodies, of high titre, capable of causing the immobilization and subsequent lysis of the anterior flagella, after inactivation of the antiserum. *Trichomonas vaginalis* and *Trichomonas foetus* were found to be antigenically indistinguishable.

SCHNITZER, R. J. & KELLY, D. R. (1954). **Interference phenomenon of Browning and Gulbransen in experimental infection of mice with** *Trichomonas vaginalis*. — *Proc. Soc. exp. Biol., N.Y.* **85,** 123-124. [Authors' summary modified.] **2678**

In experiments with mice infected with *Tr. vaginalis* a local treatment with inactive doses of *p*-rosaniline hydrochloride markedly antagonized an active dose of acriflavine. The interference phenomenon of Browning and Gulbransen (1922) therefore also applies to *Tr. vaginalis*.

FRANK, H. G. & REINER, L. (1954). **The action of fat-acids on** *Trichomonas vaginalis*.—*J. Immunol.* **72,** 191-193. [Authors' summary copied *verbatim*.] **2679**

Fat-acids having a chain length of 7 to 12 carbon atoms are trichomonacidal. Within this range the activity increases with the chain length. The trichomonacidal action is greater at lower than a higher pH values within the pH range tested.

DAVIS, L. R. & BOWMAN, G. W. (1954). **The use of sulfamethazine in experimental coccidiosis of dairy calves.**—*Cornell Vet.* 44, 71-79. [Authors' summary modified.] **2680**

In two experiments involving 28 young dairy calves, half were given sulphamethazine, the others being left as untreated controls. All were given large numbers of oocysts of mixed species of coccidia or of *Eimeria zurni* only. The 14 treated calves were less severely affected and 10 of them gained slightly more weight than the controls. There was little difference between the two groups in response to challenge infections. When administered according to body wt., the drug was present in the blood at higher levels in small calves than in older ones.

MARTHEDAL, H. E. & VELLING, G. (1953). Sammenlignende undersøgelser over virkningen af forskellige terapeutika på experimentelt fremkaldt blindtarmscoccidiose. Nitrofurazon, nitrophenid, 3-nitro-4-hydroxyphenylarsonsyre, aureomycin og sulfabenzpyrazin. **[Comparative trials with nitrofurazone, nitrophenide, 3-nitro-4-hydroxyphenyl arsonic acid, aureomycin and sulphaquinoxaline in experimental caecal coccidiosis.]** — *Nord. VetMed.* **5,** 331-348. [In Danish. English, French and German summaries.] **2681**

There was little difference in the effectiveness of nitrofurazone, nitrophenide and sulphaquinoxaline in experimentally infected chickens when treatment was begun 48 hours after infection. When it was begun after 72 hours, however, sulphaquinoxaline at a conc. of 0·05% in the drinking water was superior, but not at half this concentration. Aureomycin 0·005% in the drinking water had some coccidiostatic effect if given not later than 48 hours after infection; it was much less effective when given at 0·01%, 72 hours after infection.—R. B. HOLCOMBE.

RAY, H. N. & GILL, B. S. (1954). **Preliminary observations on alkaline phosphatase in experimental** *Eimeria tenella* **infection in chicks.** —*Ann. trop. Med. Parasit.* **48,** 8-10. [Authors' summary slightly modified.] **2682**

E. tenella infection in chicks reduced alkaline phosphatase activity in the tissues of the infected area. Activity was most markedly reduced during second-generation schizogony, in a striking contrast to the strongly positive reaction maintained in healthy tissue. The nuclei of sporozoites, first- and second-generation schizonts, gametocytes and oocysts all showed strongly positive alkaline phosphatase activity throughout. Second-generation merozoites, during their early stages of differentiation and development, presented a strongly positive localized area in the neighbourhood of the nucleus, which later broke up into several

granules and finally disappeared when the merozoites reached maturity. The globules of the female gametocyte showed a heavy deposit of cobalt sulphide, which disappeared after fertilization. The micropylar end of the oocyst showed a conspicuous deposit of cobalt sulphide.

MANRESA, M., JR. (1953). **The occurrence of phanerozoites of *Plasmodium lophurae* in blood-inoculated turkeys.**—*J. Parasit.* **39,** 452-455. **2683**

Sex, immune plasma and intensity of parasitaemia did not influence the development of exoerythrocytic stages of *Pl. lophurae* which were found in brain smears of turkeys from the 15th to the 24th day after inoculation with infected r.b.c.—S. F. M. DAVIES.

MANDUŠIĆ, D. (1953). Piroplazmoza u srezu Rogatičkom. [**Piroplasmosis in sheep in the district of Rogatica, Yugoslavia.**]—*Veterinaria, Sarajevo.* **2,** 401-402. [In Croat. English summary.] **2684**

Piroplasmosis in sheep appears to have been present in the district of Rogatica, Yugoslavia since the times of the Turkish occupation. During 1951-52 the losses reached 20% and the agent was identified as *Babesia ovis.*

—I. MARTINI.

JANSEN, B. C. (1953). **The parasiticidal effect of aureomycin (Lederle) on *Babesia equi* (Laveran 1899) in splenectomised donkeys.** — *Onderstepoort J. vet. Res.* **26,** 175-182. **2685**

Splenectomised donkey foals experimentally infected with *B. equi* were treated with repeated intravenous injections of aureomycin in doses of 15·6 mg. per lb. body wt. The treated donkeys recovered, relapsed, were treated again and eventually developed immunity. Untreated controls invariably died.

FOOTE, L. E. (1954). **New information on anaplasmosis.**—*N. Amer. Vet.* **35,** 19-21. **2686**

F. considers that anaplasmosis is caused by a filtrable agent which is thought to form red cell inclusion bodies. The single phase life cycle in cattle causes an acute disturbance of the haemopoietic system.—W. S. MARSHALL.

ERICHSEN, S. & HARBOE, A. (1953). **Toxoplasmosis in chickens. I. An epidemic outbreak of toxoplasmosis in a chicken flock in south-eastern Norway.** — *Acta path. microbiol. scand.* **33,** 56-71. [In English. Authors' summary modified.] **2687**

An account of an epidemic of toxoplasmosis causing deaths and occasionally blindness in a flock of 40 fowls in Norway. The parasites were demostrated histologically in 5 fowls, from 3 of which infection was transmitted to mice. In early passages the virulence of the fowl strain for mice appeared to be low. When 5 mg. cortisone acetate were injected s/c along with infected material and again 24 hours after inoculation the susceptibility of the mice was increased, and in subsequent passages the strain was fully virulent. Serologically the toxoplasms isolated from fowls resembled the Sabin "R.H." strain. Fowls developed immunity against that strain following experimental infection with the fowl strain.

The most constant lesions in the affected fowls were peri- and myocarditis, encephalitis and ulcerative gastro-enteritis. Serum samples from the diseased fowls gave negative or only feebly positive reactions to the Sabin-Feldman dye test, and the authors could not demonstrate specific antibodies by the c.f. reaction.

NOBREGA, P. (1951). Toxoplasmose, uma doença de animais transmissível ao homem. [**Toxoplasmosis, a disease of animals transmissible to man.**] — *Biológico.* **17,** 79-83. **2688**

A brief description of the diagnosis of toxoplasmosis and the role of animals in the transmission of the disease to man.—R.M.

BEVERLEY, J. K. A. & BEATTIE, C. P. (1954). **Human toxoplasma infection.** — *J. Hyg., Camb.* **52,** 37-46. [Authors' summary modified.] **2689**

Using the dye test, the authors demonstrated toxoplasma antibodies in titres of 1:4 or higher, in the sera of 25% of a sample of the adult population of Sheffield. Significantly higher, when strength as well as number was considered, were the reactions of the sera of veterinary surgeons and abattoir workers. Still higher were the reactions of the sera of those who handled rabbits. Highest of all were those of rabbit trappers. Toxoplasma antibodies active to a titre of 1:40 in the dye test were found in 34% of wild rabbits and, to a titre of 1:160, in 5%.

CHERNIN, E. & WELLER, T. H. (1954). **Serial propagation of *Toxoplasma gondii* in roller tube cultures of mouse and of human tissues.** —*Proc. Soc. exp. Biol., N.Y.* **85,** 68-72. [Authors' summary slightly modified.] **2690**

The RH strain of *T. gondii* was propagated for 15 serial passages and a second strain for 7 passages in roller tube cultures of mouse embry-

onic tissues. Multiplication of the RH strain was also observed in roller cultures of human foreskin, uterus and embryonic skin-muscle tissues. In each instance, the appearance of organisms in the culture was associated with extensive degenerative changes and ultimate destruction of the tissue. At the point of apparent maximum release, the culture fluid contained large numbers of the protozoa.

CREMA, A. & AMBRECK, A. (1952). Contributo allo studio dell'azione esercitata dall'aureomicina e terramicina *in vitro* e *in vivo,* dalla tirotricina *in vitro* a dalla proteino-terapia aspecifica sulla toxoplasmose sperimentale. **[Action of aureomycin, terramycin, tyrothricin and non-specific protein therapy on toxoplasmosis in rats.** — *Boll. Soc. ital. Biol. sper.* **28,** 650-654. 2691

The s/c administration of 12–250 mg./kg. aureomycin to rats infected with *Toxoplasma* only prolonged their survival by a few days. Protein shock therapy and terramycin were ineffective. Tyrothricin killed the organism *in vitro* at concentrations greater than 75μg./ml. —R.M.

BIERER, B. W. (1954). **Buffalo gnats and leucocytozoon infections of poultry.**—*Vet. Med.* **49,** 107-110 & 115. 2692

This is a review of the pathogenic effects of species of *Simulium* in domestic animals in general and the specific effects in turkeys of *Leucocytozoon smithi* which is transmitted by these arthopods.

Control measures advocated include the rearing of poults behind insect-proof screens and the control of the vectors by insecticides. —E. J. L. SOULSBY.

COOK, A. R. (1954). **The gametocyte development of** *Leucocytozoon simondi.* — *Proc. Helm. Soc. Wash.* **21,** 1-9. [Author's summary modified.] 2693

C. presented evidence that the gametocytes of *L. simondi* found in the circulating blood of the duck, develop exclusively in the r.b.c. series. Both the round and elongate gametocytes appear to be mature and no transitional stages between the two could be found. No evidence of pigment was seen in either form.

BARBARO, A. D'A. (1951). Comportamento della fauna protozoaria del rumine di caprini in presenza di vitamine, *in vitro.* I. Azione della vitamina A. II. Azione della vitamina D_3. III. Azione della vitamina E. IV. Azione dell vitamina K. **[Behaviour of the ruminal protozoa of goats in the presence of vitamins A, D_3, E and K,** *in vitro.*—*Boll. Soc. ital. Biol. sper.* **27,** 1439-1446 & 1551-1552. 2694

The addition of graduated amounts of either vitamin A, D_3, E or K to samples of rumen content from goats did not prolong the survival of the protozoa present. Vitamin A appeared to inhibit the protozoa.—R.M.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

DJURO, K. (1953). La lutte contre la fièvre aphteuse en République fédérale Yougoslavie. **[Control of foot and mouth disease in Yugoslavia.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 497-501. 2695

F. & M. disease appeared in Yugoslavia in 1952, from Greece and Macedonia. It was successfully stamped out in affected areas and spread was prevented by a combination of slaughter, movement restrictions and vaccination in infected and contact regions. Vaccination was compulsory.—G. V. LAUGIER.

ANON. (1953). Eröffnung der MKS-Station Köln am 5. Oktober 1953. **[Opening of the foot and mouth disease station at Cologne, October 1953.]** — *Mh. Tierheilk.* **5,** 364-365. 2696

The new F. & M. disease station at Cologne, directed by Professor Dr. W. Geiger, brings the number of laboratories producing F. & M. disease vaccine in Western Germany to four. The others are at Eystrup, Hanover, and Lübeck.—R.M.

GIRARD, H., MACKOWIAK, C. & ROBIN, J.-C. (1953). Notion de variante en matière de virus aphteux. **[Variants of the foot and mouth disease virus.]**—*Bull. Soc. Sci. vét. Lyon.* **54-55,** 83-90. 2697

The authors gave a brief history of variants of F. & M. disease virus and described two experiments in which it was shown that A_1 immunizes well against the variants A_1, A_2, A_3, but incompletely against A_4 and very poorly against A_5; also that A_4 affords only partial protection against A_5.—G. V. LAUGIER.

SALOMON, LOUIS & SALOMON, LÉONE,. (1953). Nouveaux procédés de culture du virus aphteux. Recherches expérimentales. [**New methods for the culture of foot and mouth disease virus.**]—*Encycl. vét.* No.1/2. pp. 44-56. **2698**

The authors gave a brief history of various methods of cultivating F. & M. disease virus *in vivo, in ovo,* and *in vitro*. They gave details of the technique and results of modern methods which show promise and some of which are now in commercial use. They discussed their advantages, disadvantages and practical application. Methods detailed are: culture in immature mice (Skinner), tissue culture as described by Frenkel, culture on ultra-filtered media and the use of bovine c.s.f. or deproteinated amniotic fluid, culture in perfused foetal lung-heart preparation and finally culture in artificially produced ' embryomas ' [*V.B.* **23,** 2518-2519].

—G. V. LAUGIER.

BROOKSBY, J. B. & WARDLE, E. (1954). **Titration of the virus of foot and mouth disease in culture.**—*J. Hyg., Camb.* 52, 87-99. [Authors' summary modified.] **2699**

The authors described a technique for the titration of the virus of F. & M. disease in culture in surviving epithelial tissue from the tongues of cattle. The cultures are incubated in cups on Perspex plates, and the detection of virus multiplication is by a c.f. test made on the culture in each cup. On the basis of comparative titrations in culture and in cattle the method was found to be as sensitive for the detection of virus as the titration by i/d inoculation of the tongue of cattle. The method can also be applied in the detection of antibody in neutralization tests.

POTEL, K. (1953). Die Maul- und Klauenseuche der Ziege nach künstlicher Infektion unter besonderer Berücksichtigung der epizootischen Typvariante A_5. [**Experimental infection of goats with the virus of foot and mouth disease.**] — *Arch. exp. VetMed.* 7, 407-424. **2700**

P. studied the pathology of F. & M. disease in goats. He used 5 groups totalling 91 goats ranging from 8 weeks to 5 years, which he infected either by oral swabbing or by contact with infected goats, using types A and C of virus.

Immunization experiments with adsorbed monovalent C vaccine prepared at Riems were carried out in 67 of the goats. They were submitted to single or repeated vaccination either before or after experimental infection with all three types of virus.

Generally they tolerated vaccination well without reaction, apart from slight rises in temperature in some. The vaccine had no untoward effect on pregnancy. One goat, however, which had given birth to normal, healthy twins during the period following vaccination, failed to lactate and the kids, which had to be fed on cows' milk, died.

Two goats died of haemorrhagic septicaemia a few days after immunization, probably as a result of bacterial infection of the site of vaccination. P. remarked on the apparently increased susceptibility to bacterial infection of immunized goats.—E.G.

NORDBERG, B. K. & SCHJERNING-THIESEN, K. (1953). **The presence of foot-and-mouth disease antibodies in hyperimmune serum and convalescent serum demonstrated by the complement fixation method. Preliminary report.**—*Nord. VetMed.* **5,** 289-295. [In English. German and Swedish summaries.] **2701**

The authors demonstrated the presence of complement-fixing antibodies in samples of hyperimmune and of convalescent serum diluted with hypertonic saline, using a modification of the method described by Serra & Guarini [*V.B.* **22,** 2054 & **23,** 96]. Type differentiation was possible in samples so treated. Further work on a larger number of samples is necessary.

—G. V. LAUGIER.

PRAT, J. (1952/53). Sur la transmission héréditaire de l'immunité naturelle contre la fièvre aphteuse chez certains bovins. [**Hereditary transmission of natural immunity to foot and mouth disease in cattle.**]—*Bull. Soc. Sci. vét. Lyon.* 54 & 55, 297-302. **2702**

Epizootic cycles of F. & M. disease in France have enabled observers to note resistance of individual cattle in many cases. Observation on a pedigree herd over a period of 14 years revealed that the descendants from one cow which resisted F. & M. disease in 1938, were either completely or partially immune to the disease. Similar observations in relation to a bull were quoted. It was concluded that receptivity to disease can be related to hereditary factors. P. quoted examples in the case of other diseases and discussed theoretical considerations.

—G. V. LAUGIER.

BELIN, C. (1954). Considérations théoriques concernant la méthode Belin de préparation du vaccin antiaphteux. [**Theoretical considerations of the method described by Belin for the preparation of vaccine against foot and**

mouth disease.]—*Rec. Méd. vét.* **130**, 105-108. 2703

B. described the preparation of Belin vaccine in relation to theoretical virology. He answered criticisms on bacterial contamination. It was shown that the only organisms recovered by culture of the vaccine are saprophytic staphylococci.—G. V. LAUGIER.

LABRAÑA, H. T. (1952). Efectos de la congelación en el contenido biológico de la vacuna antiaftosa tipo Waldmann. [**Effect of freezing on foot and mouth disease vaccine.**]—*Rev. Soc. Med. Vet., Santiago.* **3**, No. 4. p. 5. 2704

L. confirmed that freezing destroys the immunizing power of aluminium hydroxide vaccine against F. & M. disease. Details of his experiments are not included in this summary of his thesis.—I. W. JENNINGS.

YOUNG, K. S. & IRONS, J. V. (1953). La rabia en los animales silvestres del estado de Texas, E.U.A. [**Rabies in wild animals in Texas, U.S.A.**]—*Bol. Ofic. sanit. pan-amer.* **35**, 410-417. 2705

In spite of control campaigns against foxes and skunks—the main animal species implicated in the spread of rabies in Texas—there is still a focus in the centre of the eastern part of the State. The authors showed the distribution on maps and quoted figures from Public Health reports to illustrate the magnitude of the problem. The numbers of foxes can be reduced by poisoning and by hunting; skunks are more difficult: the authors recommended trapping, using preferably live bait in a closed box.

—F.E.W.

GALLO, P. (1952). Propiedades biológicas del virus fijo de la rabia paresiante de Venezuela, " cepa Bolívar " y resistencia frente algunos agentes fisicos y químicos. [**Biological properties of a Venezuelan fixed paralytic rabies virus and its resistance to physical and chemical agents.**]—*Rev. Med. vet., Caracas.* **11**, Nos. 3 & 4. pp. 195-204. [English summary.] 2706

G. studied the physical and chemical properties of the Bolívar strain of fixed rabies virus, isolated from cattle in 1940 and since then maintained by repeated passage (5-day incubation period) in cattle brain. Mice in which it was passaged intracerebrally died after 5–6 days. The virus passed through Berkefeld N and Seitz EK filters, was resistant to heat, 60°C. for 30 min. but was killed after an hour, was 50% lethal in mice in dilutions of 10^{-6} and 10^{-7} by the intracranial, subcutaneous, intramuscular, intraperitoneal, intradermal, intravenous, nasal, oral and conjunctival routes and was recovered from the liver, spleen, kidney, lung and adrenal glands, but not from the blood. It was resistant to ethyl ether for 24 but not for 48 hours at 4° and at 26°C., was killed by chloroform in 24 hours at 4° and 26° and by phenol after 48 hours at 26°C.—F.E.W.

WELLS, C. W. (1953). **Control of rabies in animals: compulsory vaccination combined with legally enforced control measures in country-wide application.** — *Proc. VIth Congr. int. Microbiol., Rome,* 1953. **2**, pp. 149-151. [In English. Only abst. given. Abst. from abst.] 2707

W. described the rabies control campaign in Malaya during 1952 and the first 7 months of 1953. The vaccination and identification of all dogs over 4 months of age was compulsory. During this period over 100,000 dogs were vaccinated and nearly 6,000 stray dogs were shot. A marked reduction in the incidence of rabies in dogs has already been achieved.—R.M.

HOTTLE, G. A. & PEERS, J. H. (1954). **Studies on the removal of the encephalitogenic factor from rabies vaccine.**—*J. Immunol.* **72**, 236-242. [Authors' summary copied *verbatim.*] 2708

By means of centrifugation at approximately 100 G of a suspension of 5% brain tissue in distilled water, it was possible to remove a large part of the encephalitogenic factor from rabies vaccine and retain most of the mouse-protective antigen in the supernatant fluid.

PUNTIGAN, F. & BERGER, K. (1953). Ein Beitrag zum funktionellen Verhalten des Hypophysen - Nebennierenrinden - Systems bei künstlicher Vaccina-Infektion des Jungrindes. [**Function of the pituitary-adrenal cortex system in cow pox in young cattle.**]—*Z. Hyg. InfektKr.* **138**, 261-271. 2709

Pituitary-adrenal cortical activity was measured in young cattle of 283 kg. average weight by a study of the haemogram before and after the i/m injection of 25 mg. A.C.T.H. Neutrophiles increased to 130% of the normal, while eosinophiles and lymphocytes decreased to 73% and 25% respectively in healthy animals (Thorn-test).

An increase in pituitary-adrenal cortical activity was shown in haemogram results from cattle experimentally infected with cow pox virus.—R. B. HOLCOMBE.

TERAKADO, Y. (1953). **Studies on swine-pox.**—*Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo.*

No. 26. pp. 91-92. [In English.] 2710

Swine pox had never been observed in Japan until 1940. By Oct. 1948, five outbreaks had been identified. The virus is concentrated in the skin lesions. Inclusion bodies are found in the epithelial cells of incipient lesions. No immunological relationship was found between the swine pox virus and that of vaccinia. Neither calves, sheep, goats, g. pigs nor rabbits are susceptible to swine pox virus, which is species specific.—KOGI SAITO.

BEAUDETTE, F. R. (1954). **The identity of canary pox and "Schnappkrankheit" with notes on vaccination and modification of the virus.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 249-272. 2711

B. reviewed the literature on canary pox and listed outbreaks diagnosed at the New Jersey Experiment Station in recent years. "Schnappkrankheit" is an infectious disease which causes high mortality in canaries, and is characterized by respiratory symptoms, and sometimes cutaneous warts. B. isolated a virus from canaries with this disease, and showed that it was identical with the virus of canary pox. He described attempts at producing a vaccine against canary pox by passaging the virus through fowls and fowl embryos. Fourteen thousand canaries imported from Germany were vaccinated with embryo-passaged vaccine: 23–67% of the vaccinated birds died within 40 days.—R.M.

ISAACS, A. (1953). **The viruses of epidemic influenza.**—*Brit. med. Bull.* **9**, 208-211. 2712

After a brief historical survey, the author described the antigenic structure of influenza viruses and discussed its relation to the epidemiology and prevention of the disease. He referred briefly to suggestions that the human virus may become adapted to the pig and compared the epidemiology of influenza A with that of swine influenza.—IAN DAVIDSON.

PAYZIN, S. (1953). **Antibodies against swine influenza in the sera of Turkish people where there are no contacts with swine population.**—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. **1**, pp. 551-552. [In English. Only abst. given. Abst. from abst.] 2713

P. examined serum samples from 850 human beings in Turkey, where titres against swine influenza were unexpected, since there are no domestic pigs, and the consumption of swine flesh is forbidden. A high proportion of these samples were positive to influenza types A and B and to swine influenza, but only 9 were positive for swine influenza and negative for type A and type B influenza.—R.M.

LANNI, F. & LANNI, Y. T. (1952). **Reactions involving kaolin, swine influenza virus, and egg-white inhibitor of virus hemagglutination.**—*Mem. Inst. Osw. Cruz.* **50**, 571-580. [In English.] 2714

It was shown that kaolin adsorbs the egg-white inhibitor of virus haemagglutination and that the action was reversible.

STEWART, F. S. & QUILLIGAN, J. J., JR. (1951). **A method for estimating the capacity of influenza virus to effect antigenic modification of red blood cells.**—*J. Immunol.* **66**, 411-419. 2715

The authors stated that similar antigenic modifications were observed in human r.b.c. exposed to *Vibrio cholerae* cultures and human influenza virus. They estimated the extent of these modifications and studied the effect of ultra-violet irradiation and heat.

—JOHN SEAMER.

SAGIK, B., PUCK, T. & LEVINE, S. (1954). **Quantitative aspects of the spontaneous elution of influenza virus from red cells.**—*J. exp. Med.* **99**, 251-260. [Authors' summary slightly modified.] 2716

Each red cell of fowls and human beings has approx. 300 sites capable of attaching influenza virus particles. These correspond to an area representing approx. 2% of the red cell surface.

Although the rate of attachment of PR8 to red cell is not diffusion-limited when calculated on the basis of the total cell area, it does approach the theoretical maximum for interaction between the virus and the fraction of the cell area known to contain attachment sites. The authors demonstrated that the virus attachment can initiate a spreading disturbance on the red cell membrane which extends over an area far exceeding that covered by the attached virus and which leads to the destruction of receptor sites. This process does not involve cyclic virus attachment, elution from the cell, and reattachment to another site. Practically all the receptor sites on a cell are destroyed before any virus is liberated into the medium. The spontaneous elution of virus from red cells within 24 hours at 37°C. requires a threshold value of at least 3 and less than 5 virus particles per cell.

Parallelisms between the spontaneous elution reaction and the phenomenon of lysis-from-without in the bacteriophage system were demonstrated.

SMITH, W., COHEN, H., BELYAVIN, G. & WESTWOOD, J. C. N. (1953). **The effects of ethyl ether on some biological properties of in-**

fluenza virus.—*Brit. J. exp. Path.* **34,** 512-524. 2717

Treatment of influenza virus with ether caused a reduction in the speed of haemagglutination, irrespective of the amount of haemagglutinin present.—R.M.

REAGAN, R. L., STRAND, N. & BRUECKNER, A. L. (1953). **Response of the Swiss albino mouse to Semliki Forest virus.**—*Cornell Vet.* **43,** 427-430. 2718

A strain of Semliki Forest virus has been carried for 5 passages in weanling mice by intrarectal instillation of infected brain suspensions. —J. T. DONE.

REAGAN, R. L., STRAND, N. & BRUECKNER, A. L. (1954). **Response of the baby chick to Semliki Forest, Bwamba, and Ntaya viruses.** —*Cornell Vet.* **44,** 60-63. [Authors' summary modified.] 2719

A strain of each of three viruses—Semliki Forest, Bwamba and Ntaya—was successfully transmitted to day-old chicks by the intracerebral, intraperitoneal, intradermal, intramuscular, intracardial, intralingual, intranasal, intraocular, and rectal routes.

BERNKOPF, H., LEVINE, S. & NERSON, R. (1953). **Isolation of West Nile virus in Israel.** —*J. infect. Dis.* **93,** 207-218. 2720

A virus indistinguishable from West Nile virus was isolated from human beings in a community settlement in Israel. Two of 13 serum samples from fowls tested neutralized considerable quantities of the virus.—D. LUKE.

MITAMURA, T., KITAOKA, M. & MIURA, T. (1950). **[On the geographical distribution of Japanese B encephalitis in the Far East Asia.]**—*Jap. med. J.* **3,** 257-264. 2721

The neutralization tests were carried out with serum samples collected from adult native inhabitants af Sakhalin, Manchuria, Central China, Hainan Island and French Indo-China. Positive reactions were *nil* in persons from North Manchuria and Sakhalin, 30% among South Manchurians, 60% in Central China, *nil* in Hainan Island and 44% in French Indo-China. Taken along with the findings obtained in human and animal sera collected in Malaya, Sumatra, Java, Southern Burma and the Philippines, these results revealed that Japanese B encephalitis is widely spread over East Asia. Some of the samples gave a negative reaction to the Japanese B virus but were weakly positive to St. Louis encephalitis virus. It was also shown that louping-ill and Eastern and Western equine encephalitis do not appear to be present in the Far East.—KOGI SAITO.

HALE, J. H. & WITHERINGTON, D. H. (1954). **A serological survey of antibodies to Japanese B encephalitis virus among horses in Malaya.** —*Ann. trop. Med. Parasit.* **48,** 15-20. [Authors' summary modified.] 2722

The authors presented serological evidence which suggests that the majority of the horses imported into Malaya from the United Kingdom or Australia become infected, or are in contact, with Japanese B encephalitis virus within the first 6–12 months of residence. Most horses that have been resident in Malaya for over 12 months show neutralizing antibodies in their serum, and are therefore presumably immune. It is therefore considered unlikely that the horse population represents a serious reservoir of infection of Japanese B encephalitis. Contact of newly imported horses with the virus is a constant phenomenon; the authors discussed the implication of this finding on the epidemiology of the infection. In the majority of Malayan racehorses the infection appears to give rise to no clinical signs.

UEDA, T., TOYOSHIMA, S., TANIGUCHI, M., TATSUMI, H. & WACHI, S. (1952). **Studies on chemotherapeutic drugs against viruses. V. Chemotherapeutic effect of sodium 3-phenylazonaphthionate on neurotropic virus.**—*Keio med. J., Tokyo.* **1,** 49-54. 2723

The drug had viricidal, protective and curative effect against Japanese B encephalitis virus, and low toxicity.—KOGI SAITO.

SHIMIZU, T. & KAWAKAMI, Y. (1952). **[Transfer of neutralizing antibody against Japanese encephalitis virus to suckling swine by colostrum.]**—*Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo.* pp. 11-19. [In Japanese and English.] 2724

Neutralizing antibody against Japanese encephalitis virus was transferred to new born piglets by ingestion of maternal colostrum; it persisted for 3 to 7 months after birth and then disappeared.—KOGI SAITO.

SHINEFIELD, H. R. & TOWNSEND, T. E. (1953). **Transplacental transmission of Western equine encephalomyelitis.**—*J. Pediat.* **43,** 21-25. [Abst. from abst. in *Bull. Hyg., Lond.* **29,** 139. (1954).] 2725

The authors discussed evidence for transplacental transmission of antibodies and viruses. They gave an account of two clinical and serologically proven cases of Western equine encephalomyelitis in twin infants, 5 days old. The

evidence strongly suggested transplacental transmission of the virus.

Maternal infection with Western equine encephalomyelitis in the late stages of pregnancy does not invariably infect the infant. *In utero* infection may be dependent upon local placental defects.

DOLL, E. R., RICHARDS, M. G. & WALLACE, M. E. (1954). **Cultivation of the equine influenza virus in suckling Syrian hamsters. Its similarity to the equine abortion virus.**—*Cornell Vet.* **44**, 133-138. [Authors' summary slightly modified.] 2726

The equine influenza viruses, Army 183 and Grayson I strains, infected unweaned Syrian hamsters following i/p inoculation and were carried through 12 passages in this host. Successful adaptation was evident from the fatal effect of inoculation, the development of acidophilic intranuclear inclusion bodies in the liver in infected hamsters for each virus passage, and fixation of complement by infected hamster liver antigen in the presence of equine influenza virus antiserum. Lesions resulting from equine influenza virus infection in hamsters were identical with those obtained from i/p inoculation of hamsters with equine abortion virus. Also, reciprocal fixation of complement occurred between abortion virus and influenza virus antigens and antiserums. These results indicate that the equine abortion and equine influenza viruses employed in this study are closely related or identical.

I. PEHL, K.-H. (1952). Zellanalyse des Knochenmarks bei infektiöser Anämie. [**Cell analysis of the bone marrow in equine infectious anaemia.**]—*Arch. exp. VetMed.* **6**, Suppl. pp. 44-46. 2727

II. PEHL, K.-H. (1953). Knochenmarkszellbild und Diagnose bei der infektiösen Anämie der Pferde. [**The bone marrow cell picture in the diagnosis of equine infectious anaemia.**] —*Arch. exp. VetMed.* **7**, 106-117. 2728

I. P. carried out sternal marrow biopsies in a number of horses with acute E.I.A. He observed a reduction in the number of erythroblasts and an increase in myeloid elements, which was probably only relative. Immediately before and during a rise of temperature there was a temporary increase in the number of red cells. Increase in reticular and plasma cells was marked but not specific for E.I.A.

II. P. discussed the value of sternal marrow biopsy in the diagnosis of E.I.A., based on results of examination by this method of a number of horses at various stages of the disease. There are two tables, analysing some of the findings.—E.G.

I. POTEL, K. (1952). Hämatologische Befunde bei der infektiösen Anämie der Pferde. [**Blood picture in equine infectious anaemia.**] —*Folia haemat.* **71**, 598-603. 2729

II. POTEL, K. & SCHMIDT, D. (1953). Die Leberharpunierung bei gesunden und experimentell mit dem Virus der infektiösen Anämie infizierten Pferden unter Kontrolle des Blutbildes. [**Examination of the blood picture and liver biopsy in healthy horses and in horses infected with equine infectious anaemia.**] — *Arch. exp. VetMed.* **7**, 94-105. 2730

I. P. stated that in horses with E.I.A. examined during the initial and terminal phase and during fever periods, the number of r.b.c. was reduced to about 25% of the normal. In chronic and subacute cases, however, the reduction was usually insignificant. There were changes in the shape of red cells and reduction of the haemoglobin content of the blood. Changes in the white blood picture were not conclusive. As in other forms of anaemia the rate of sedimentation was increased. He stated that although these changes were not specific for E.I.A., they may have a certain diagnostic value.

II. The authors carried out liver biopsies and blood examination at regular intervals in 2 healthy horses and in 4, experimentally infected with E.I.A. Changes in the blood picture were not conclusive. Biopsies revealed sudden activation of the reticulo-endothelial system, first observed the fourth day after infection, just before the onset of a fever period. They discussed the histology of the findings.—E.G.

I. POTEL, K. (1952). Hodenveränderungen bei der infektiösen Anämie der Pferde. [**Testicular lesions in equine infectious anaemia.**]— —*Arch. exp. VetMed.* **6**, Suppl. pp. 34-35. 2731

II. POTEL, K. (1953). Über die wechselseitigen Beziehungen der Leber- und Milzveränderungen bei der infektiösen Anämie der Pferde. [**Liver and spleen lesions in equine infectious anaemia.**] — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 370-375. [In German. English and French summaries.] 2732

I. P. examined testicular material from a number of foals about 18 months old which had died or been slaughtered at various stages following infection with the virus of E.I.A. Apart from proliferative changes in the testicular tissue

there were in some cases regressive changes in the arterial walls, in the form of hyaline degeneration of the media and desquamation of the intima, resulting frequently in complete blockage of the vascular lumen. In the tissue surrounding vessels so affected, there were always dense lymphoid and histiocyte cell infiltrations, which caused more or less marked obliteration of seminiferous epithelium and of parenchymatous tissue, resulting in partial or complete cessation of spermatogenesis. Changes of this kind were present as early as the 5th day after infection. He discussed the possible value of these observations.

II. This is a condensed account of work already reported [*V.B.* **24,** 2347].—E.G.

STECK, W. (1953). Neue Untersuchungen über die infektiöse Anämie der Pferde. [**Recent studies of equine infectious anaemia.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 363-369. [In German. English and French summaries.] 2733

S. discussed the characteristic sublingual haemorrhages observed in E.I.A. [*V.B.* **20,** 1258-1264] and the incidence of the infection in Switzerland where it appeared to be confined to certain zones, although some areas within these zones, particularly those on higher ground, remained free from the disease. He observed two epidemiological phases—one active, lasting a relatively short time, which may be followed by an inactive phase lasting several years during which no new cases occur in spite of the presence of infected horses.—E.G.

SCHMIDT, J. (1952). Die Bornakrankheit des Pferdes. 55 Jahre Forschung und Lehre. [**Fifty-five years of research into Borna disease of horses.**] — *Arch. exp. VetMed.* **6,** 177-187. 2734

S. described the progress made since 1896 in the investigation of Borna disease in Saxony, taking into consideration the pathology, clinical signs, epidemiology and the present-day, still unsatisfactory therapeutic measures. He suggested that the poor results in prevention may be attributable to the use of heterologous brain tissue for vaccine production; he still has great hopes of control by the use of horse brain vacvine.—W. G. SILLER.

EICHMEIER, H. (1953). Ein Beitrag zur Diagnose der ansteckenden Gehirn-Rückenmarksentzündung (Borna'schen Krankheit) der Pferde unter besonderer Berücksichtigung des Kaninchen-Impfversuches bei negativem histologischen Gehirnbefund. [**Diagnosis of Borna disease by rabbit inoculation.**]—*Inaug. Diss., Munich.* pp. 62. 2735

From negative intracerebral inoculation experiments in rabbits with material from 100 clinical cases of Borna disease the author concluded that such inoculation experiments are superfluous if the histological brain examination fails to reveal the typical lesions of Borna disease.—W. G. SILLER.

BAKER, J. A. (1954). **Rinderpest.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 192-196. 2736

B. gives an account of rinderpest which appears to be based on knowledge gained from experimental infections in cattle of highly susceptible breeds. For that reason some of his statements do not apply to the disease as it occurs in the endemic areas in Asia and Africa. The incubation period is stated to be from 3–5 days, which is correct following experimental infection by inoculation, but in natural outbreaks it is very often as long as 9 days or more. The cutaneous lesions are not termed streptothricosis. The skin lesions of rinderpest clear up, in recovered animals, within a matter of a few weeks. Streptothricosis is a very chronic intractable disease which may occur as a sequel to rinderpest. The statement that buffaloes are less susceptible than cattle needs qualification. Egyptian buffaloes are definitely much less susceptible, but Ceylon buffaloes and some of the Indian and Siamese breeds are equally or more susceptible and are very frequently affected during epidemics. That is why rinderpest constitutes such a menace to the cultivation of rice in Ceylon, Siam and other countries. Domestic and wild pigs are definitely susceptible in Asia although the disease seldom occurs in domestic pigs in Africa.

It is difficult to accept the statement that " diagnosis will not be simple " presumably should the disease occur in America, since the high mortality, the rapid spread and the clinical and *post mortem* lesions are most unlikely to be confused with any other disease of cattle in America.—M.C.

ISHII, S. & TAKAMOTO, H. (1953). **Studies on preservation of rinderpest virus. I. Results of fundamental experiments on lapinized rinderpest virus.**—*Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo.* No. 26. pp. 49-58. [In English.] 2737

Lapinized rinderpest virus was preserved under various conditions. When the desiccated virus was stored at –15° to –20°C. *in*

vacuo, there was scarcely any demonstrable fall in titre for 25 days; there was a slight fall after 40 days. This method therefore appears to be suitable for use in the field.—KOGI SAITO.

I. FUKUSHO, K. & FURUYA, K. (1953). **Studies on simultaneous inoculation of anti-rinderpest serum and lapinized rinderpest virus into the Japanese black cattle.** — *Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo.* No. 26. pp. 27-34. [In English.] 2738

II. FUKUSHO, K., ISHII, S. & FURUYA, K. (1953). **Experiments on susceptibility and resistability of Japanese black and Holstein Friesian cattle against lapinized rinderpest virus of Nakamura III strain serially passaged in Formosa.**—*Ibid.* pp. 41-47. [In English.] 2739

III. ISHII, S., FURUYA, K. & TAKAMOTO, H. (1953). **Field experiments on the effect of simultaneous inoculation with lapinized rinderpest virus and immune serum.**—*Ibid.* pp. 59-70. [In English.] 2740

I. The authors found that 2 ml. of a 1:500 suspension of lymph node material from rabbits infected with lapinized rinderpest virus could safely be used for simultaneous inoculation (with 0·1 ml. rinderpest antiserum per kg. body wt.) of Japanese black cattle.

II. The authors confirmed that lapinized rinderpest virus of the Nakamura III strain is unsuitable for use as a simple live vaccine in Japanese black cattle on account of the severe reactions which occur in that breed. It is probably safe for use in Holstein cattle.

III. Complement-fixation and serum-neutralization tests on serum samples from cattle that had been vaccinated against rinderpest by the simultaneous inoculation method in Hyogo Prefecture, Japan in 1950 indicated that this method of vaccination conferred a satisfactory degree of immunity. The latter test was much more sensitive than the former when used for the testing of immunity.

—KOGI SAITO.

ISHII, S., ISHIHARA, T. & KOBAYASHI, K. (1952). **[Haematological change of so called " bovine influenza ".]** — *Exp. Rep. Govt. exp. Sta. anim. Hyg., Tokyo.* No. 25 pp. 55-69. [In Japanese and English.] 2741

The authors examined the blood of 41 cattle either naturally or artificially infected with the virus of " bovine influenza". In 26 cases there was a temporary leucocytosis at the febrile stage. In all cases there was a marked increase of unsegmented polymorphonuclear neutrophiles at this stage with a temporary increase of neutrophiles and a decrease of lymphocytes at the peak of the febrile stage. In 20 cases monocytosis was observed during convalesence. There was a temporary increase in the erythrocyte count at the febrile stage followed by anaemia and leucopenia as the body temperature fell. The authors suggested that the disease resembled " ephemeral fever " or " three-day sickness " reported in India and Australia, but further work is needed.

—KOGI SAITO.

SUGIMURA, K. *et al.* (1952). **[On the immune serum of so-called " bovine influenza ".]**—*J. Jap. vet. med. Ass.* **5,** 249-252. 2742

Serum from cattle hyperimmunized with blood and lymph-node material from cattle with typical symptoms of so-called " bovine influenza " protected healthy animals from infection.—KOGI SAITO.

BOYD, A. G. & STUART, J. E. (1954). **Some observations on bluetongue in sheep.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 197-202. 2743

The authors described the symptoms, diagnosis, and control of bluetongue in sheep in California. A vaccine has been prepared from two strains of the egg-adapted virus, but is not yet in general use.—R.M.

PALLASKE, G. (1953). Die Sektionsdiagnostik der Schweinepest. **[P.M. diagnosis of swine fever.]**—*Mh. VetMed.* **8,** 418-422. 2744

The P.M. diagnosis of swine fever depends on the virulence of the virus, the type of husbandry and feeding, the infection with the virus alone or together with secondary bacteria, and whether the pig has been killed or has died. Typical lesions are haemorrhages in the kidneys, bladder and intestine without splenic enlargement, reddening of lymph nodes, croupous pneumonia, or an acute catarrhal haemorrhagic or fibrinous gastritis with duodenitis or jejunitis. The presence of " button ulcers " in the intestine, and of marginal infarcts in the spleen are pathognomonic, but not haemorrhages in the lung, the musculature or on the larynx.—H. BEHRENS.

CHILDS, T. (1954). **Hog cholera in Ontario in 1953.** — *Canad. J. comp. Med.* **18,** 57-58. 2745

An outbreak of swine fever which occurred in Ontario in May 1953 was eradicated 32 days after it was reported. Routine cleansing and disinfection of livestock cars and trucks are important factors in preventing spread. The

cost of keeping Canada free from the disease during the past decade was eight-tenths of one cent for each pig raised during this period.

—R. GWATKIN.

HARVEY, M. J. & COOPER, F. (1954). **Effect of exposure to hog cholera virus before and after vaccination with modified live virus vaccine.**—*J. Amer. vet. med. Ass.* **124**, 141-142. [Authors' summary modified.] **2746**

From the results of these trials, it would appear that, in healthy pigs, significant protection may be afforded by a single injection of modified live virus vaccine even when it is used one day after exposure to swine fever virus by contact with pigs dying of the disease. However, the degree of protection is not such as to obviate the need for swine fever antiserum where danger of exposure exists.

ANON. (1954). **Hog cholera and the vaccination problem—a survey.**—*J. Amer. vet. med. Ass.* **124**, 228-231. **2747**

An account of a survey of the data gleaned from the returned questionnaires sent out to the practitioners in Iowa in Dec. 1953. The author discussed the various immunizing agents, incidence of disease and plans for the next 12 months.—W. S. MARSHALL.

SATO, U. & SUGIMURA, K. (1952). **Inactivation of swine fever virus with merzonin.**]—*J. Jap. vet. med. Ass.* **5**, 81-84. **2748**

A vaccine prepared from infective blood and spleen, inactivated with "merzonin" (ethyl-mercurithiosalicylate) 0·05% at 37°C. for 14 days, conferred an immunity of about 6 months' duration.—KOGI SAITO.

BRAUNER, I. (1953). Prevencia proti nákazlivej obrne ošípaných podl'a novozískaných poznatkov. [**Control of porcine encephalomyelitis (Teschen disease).**] — *Veterinářství. Brno.* **3**, 147-149. **2749**

This is an account of mass immunization against Teschen disease in over 500,000 pigs in Slovakia between September 1952 and February 1953, using an adsorbed vaccine. It is claimed that by this method the disease was practically eradicated. In the 8 months preceding vaccination 10,926 pigs had to be killed in one district alone because of Teschen disease.—E.G.

MULHERN, F. J. (1954). **Progress report on the eradication of vesicular exanthema.** — *Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* **1953**. pp. 326-333. [Abst. from author's summary.] **2750**

Vesicular exanthema is still a threat to the livestock industry of the U.S.A. and may sweep across the country again unless measures are taken to prevent it.

A chief weakness in the control and eradication programme is that only on about 31% of 14,000 premises that feed swill to pigs is the swill first cooked; 37% of these premises are being inspected fortnightly—others were inspected only once or twice during 1953.

Fortnightly inspection is essential to ascertain the number of swill-feeding premises, to find infection, and quarantine it on premises until it can be stamped out. Inspection should be frequent enough to enable cases that develop soon after one inspection to be detected at the next. Education, practical assistance in the setting up of equipment, a check on cooking operations and of the adequacy of sanitary conditions are necessary. The movement of pigs fed raw swill should be limited to prevent them from contacting other pigs either directly or indirectly, and conveyances used for the transport of pigs either within or between States should be cleaned and disinfected.

The programme should include the slaughter of infected and exposed pigs and special processing of the carcasses.

MOTT, L. O., PATTERSON, W. C., SONGER, J. R. & HOPKINS, S. R. (1954). **Experimental infections with vesicular exanthema. I. Direct and indirect contact exposure. II. Feeding of viral suspensions and infected tissues.** — *Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* **1953**. pp. 334-349 & 349-360. [Abst. from authors' summaries.] **2751**

I. The virus of vesicular exanthema can be easily spread by direct contact, but only for about 120 hours. In one instance a contact pig developed lesions although the donor had not developed vesicles at the time of contact. Once vesicles have formed virus is shed for about 84–108 hours. An average time of 12 hours elapsed between the first temperature rise of inoculated pigs and the development of the first lesions.

It is quite difficult to spread virus by indirect contact.

Spread of infection always occurred when fever was present. However, in the direct contact experiments 16·5% of the animals developed lesions and another 4·5% developed immunity without lesions and without fever.

II. Vesicular exanthema can be transmitted quite easily by feeding meat scraps from the carcasses of pigs slaughtered after i/v inoculation with the virus. All groups of tissues

from such carcasses were infective—including the snout, skin and feet, spleen, crushed bone, lymph nodes, blood, viscera and muscle—and produced lesions or an inapparent infection with immunity when fed to pigs after storage at 7°C. for one, two or four weeks, or at –70°C. for 18 weeks.

Feeding of tissues collected from the carcasses of pigs that had been inoculated i/v and slaughtered 6 hours before vesicles would have developed, and which were free from lesions, and from similarly inoculated pigs, slaughtered 36 hours after primary vesiculation, produced lesions in healthy pigs.

Faeces collected before the development of vesicles when fed to susceptible pigs, failed to produce lesions but contained sufficient virus to immunize pigs against challenge with the virus 3 weeks later. Feeding of urine from these pigs produced neither lesions nor immunity.

Comparative virus titrations by different methods of exposure with vesicular exanthema virus epithelium suspensions or infected defibrinated blood indicates that it takes 10 to 100 intradermal-snout M.I.D. to make one intravenous or subcutaneous M.I.D. and 100 to 1000 intradermal snout M.I.D. to make one feeding M.I.D.

The incubation period following feeding of infective material varied from 40 hours to 8 days according to virus dosage.

TREVAN, D. (1953). **Discussion on some neurological diseases of man and animals. Early lesions in " nervous distemper " of dogs.**—*Proc. R. Soc. Med.* **46**, 890-891. (Discussion: pp. 894-898.) 2752

T. described three cases in which early demyelinating lesions which appeared to be directly due to invasion by viruses of the distemper group were found in peripheral (submeningeal, subependymal) sites in the c.n.s. These early glial lesions are associated with cytoplasmic and nuclear inclusions but in later lesions, only nuclear inclusions remain as evidence of viral activity.—A. ACKROYD.

KLAPÖTKE, E. (1953). Versuche zur Vermehrung des Staupevirus im Mäusegehirn. **[Attempts to passage the virus of distemper in the brain of mice.]**—*Arch. exp. VetMed.* **7**, 85-93. 2753

Dog distemper virus does not survive more than 2 or 3 direct mouse brain passages, but it did survive 9 after adaptation by means of 5 alternate dog and mouse brain passages. The virus was maintained for 26 direct passages on embryonated mouse brain tissue culture. Culture virus after 18 such passages could then survive 12 direct mouse brain passages.

—W. G. SILLER.

YONEKURA, T. (1952). **[Treatment of canine distemper with distepan G, a product of placental serum gamma globulin.]**—*J. Jap. vet. med. Ass.* **5**, 187-192. 2754

Dogs treated with " distepan G " (average dose 24·5 ml.) recovered rather more quickly than untreated controls.—KOGI SAITO.

SCHULTE, F. & AKÜN, R. (1953). Der Nachweis der Kerneinschlusskörperchen, ihre morphologische Struktur und einige Gedanken über ihre Entstehung und chemische Zusammensetzung. **[Morphology, origin, and chemical composition of nuclear inclusion bodies in canine virus hepatitis.]**—*Dtsch. tierärztl. Wschr.* **60**, 478-480. 2755

The authors described the structure and micro-chemical composition of hepatic and endothelial intranuclear inclusion bodies of canine virus hepatitis from paraffin and frozen sections stained by haematoxylin and eosin, van Gieson, Lentz, Feulgen and metachromatic methods. They consist of deoxyribonucleic acid and do not resist putrefaction.— W. G. SILLER.

MAJORI, L. (1952). Ulteriori indagini sulla recettività di alcune specie animali ad un virus isolato in un caso di leucemia canina. **[Susceptibility of laboratory animals to a virus isolated from leucaemia in a dog.]**—*Boll. Soc. ital. Biol. sper.* **28**, 242-244. 2756

In healthy dogs, g. pigs, rabbits and pigeons inoculated during the winter months with a virus isolated from a leucaemic dog, there was a critical fall in the r.b.c. count, but not in those inoculated during the summer months, even when the animals had been chilled, except in rabbits inoculated intracerebrally in which there was a transient fall in the r.b.c. count.

—I. MARTINI.

MYERS, K. (1954). **Studies in the epidemiology of infectious myxomatosis of rabbits. II. Field experiments, August-November 1950, and the first epizootic of myxomatosis in the Riverine Plain of south-eastern Australia.**—*J. Hyg., Camb.* **52**, 47-59. [Author's summary slightly modified.] 2757

An account of a study of the spread of myxomatosis in rabbits living under natural conditions in the Eastern Riverine Plain of south-eastern Australia. In five different trials the disease spread from inoculated rabbits, but

failed to gain momentum and died down within a few weeks of its introduction.

In December 1950, when the disease was persisting at low incidence on one test site and seemed to have died out in the others an epizootic broke out in the neighbourhood which spread, in a few months, over the greater part of south-eastern Australia. The only factor, apart from climatic ones, which could account for this sudden change in the activity of the disease was the development of large populations of two rabbit-feeding mosquitoes, *Anopheles annulipes* and *Culex annulirostris*. A close correlation was demonstrated, on the flats bordering the Murray River, between the distribution of these insects and the activity of myxomatosis.

I. Müller-Using, D. (1953). Gedanken zum Auftreten der Myxomatose in Deutschland. **[Occurrence of myxomatosis in rabbits in Germany.]** — *Tierärztl. Umsch.* **8**, 398-400. 2758

II. Rieck, W. (1953). Die infektiöse Myxomatose der Kaninchen. **[Rabbit myxomatosis in Germany.]** — *Berl. Münch. tierärztl. Wschr.* **66**, 365 - 368. [English summary.] 2759

I. A discussion of the devastating consequences of myxomatosis in France and Germany and the possible prophylaxis in wild and domestic rabbits.

II. R. described the clinical and P.M. picture of myxomatosis, its distribution in Germany and its control. Protection based on the interference phenomenon using Shope's fibroma virus is possible.—W. G. Siller.

Thiéry, G. (1953). Le myxome de Sanarelli. Maladie infectieuse du collagène.—Étude histochimique. **[Myxomatosis — a disease affecting the collagen fibres.]**—*Rev. Path. gen.* **53**, 537-554. 2760

For histochemical study the tissues should not be embedded in paraffin: the freezing microtome technique is necessary. Lesions were shown to comprise an accumulation of hyaluronic acid and it was concluded that myxomatosis is a disease of collagen fibres. Heparin appeared to prevent the development of the disease when given in sufficiently large daily doses from two days before artificial infection.
—G. V. Laugier.

Gompels, A. E. H. & Niven, J. S. F. (1953). **The propagation of S virus of mouse hepatitis in tissue culture.**—*J. Path. Bact.* **66**, 567-569. [Authors' summary modified.] 2761

The authors propagated the S. virus of mouse hepatitis (D.B. strain) in tissue cultures of whole mouse embryo through eight passages. Although the histological lesions produced by passage of culture material in the liver, peritoneal cavity and mediastinum closely resemble those found in S. virus hepatitis, the characteristic venous endothelial reaction was not produced.

Niven, J. S. F., Gledhill, A. W. & Dick, G. W. A. (1953). **The role of *Eperythrozoon coccoides* in mouse hepatitis.** — *Proc. VIth Congr. int. Microbiol., Rome*, 1953. **2**, p. 84. [In English. Only abst. given. Abst. from abst.] 2762

The authors briefly described their work on the relationship of *E. coccoides* to mouse hepatitis. [See also *V.B.* **23**, 117 & 1855.]—R.M.

Tolba, M. K. & Eskarous, J. K. (1953). **Effect of five strains of fowl-plague virus on a sulphonphthalein dye.** [Correspondence.] —*Nature, Lond.* **172**, 961-962. 2763

The authors tentatively suggested a method of differentiating between closely related strains of fowl plague virus by utilizing variations in their powers of decolorizing phenol red after being injected together with this dye into the allantoic cavity of eggs.—G. P. Marshall.

Dedié, K. (1953). Unsere Lage in der Geflügelpestbekämpfung. **[Control of Newcastle disease in Germany.]** — *Mh. VetMed.* **8**, 527-530. 2764

Newcastle disease has spread to such an extent in Germany that there is serious danger of it becoming endemic; this can only be averted by greater vigilance against further introductions and the use of more efficient and safer vaccines.—W. G. Siller.

Konev, F. P. (1953). **[Carriers of Newcastle disease.]**—*Veterinariya, Moscow.* **30**, No. 11. pp. 20-21. [In Russian.] 2765

K. studied the length of time fowls remained as infective carriers. Chickens, 3–5 months old, were infected with 0·5–1 ml. of 10% soln. of either blood or faeces obtained from artificially infected fowls. This material was found to be infective if obtained during the 3 to 14-day period when symptoms in the fowls were present, but non-infective as soon as the fowls recovered and no virus could be found in their blood or faeces. A table with details was appended.—F. A. Abbey.

Geurden, L. M. G., Devos, A. & Mortelmans, J. (1950). Identificatie van pseudovogelpestvirus. **[Identification of the virus of Newcastle disease.]** — *Vlaam. Diergeneesk.*

Tijdschr. **19**, 145-157. [English, French and German summaries.] 2766

A description of the identification methods used by the authors with some details on their own findings.—J.D.

DINTER, Z. & BAKOS, K. (1953). Über die Ausscheidung des Virus der Newcastle-Krankheit nach der Testinfektion immuner Hühner. **[Excretion of Newcastle disease virus after experimental infection of immune fowls.]** — *Arch. exp. VetMed.* **7**, 514-519. 2767

Fifteen fowls were immunized against Newcastle disease with an adsorbate vaccine and subsequently infected with a virulent strain of the virus. Chorio-allantoic fluid from embryonated eggs infected with a suspension prepared from their faeces yielded a positive haemagglutination reaction. The virus was then passaged in 4 other immunized cockerels, suspensions of the faeces of which were used for oral and intramuscular infection of 2 groups of 4 non-immunized fowls each. The 4 fowls infected intramuscularly succumbed within 5 days, whereas of those infected *per os* only one fell ill and was killed *in extremis*.

Four of 13 fowls kept in a small run together with 10 immunized carriers developed Newcastle disease. There was no appreciable difference in the clin. picture of fowls infected with unpassaged virus and in those infected with virus passaged in immunized fowls.—E.G.

MOYNIHAN, I. W., WALKER, R. V. L., POWELL, E. P. B. & COOPER, D. M. (1954). **An attempt to passively immunize chicks against the virus of Newcastle disease by the use of an antiserum of equine origin.**—*Canad. J. comp. Med.* **18**, 62-64. 2768

Newcastle disease antiserum was obtained from a horse and neutralized the virus in dilutions of 10^{-8} to 10^{-2} in chick embryos, the virus titre being 10^{-8}. A single dose of 0·5 ml. of this serum did not protect 3-week-old chicks against infection when given 24, 48 or 72 hours after infection.—R. GWATKIN.

I. FURUYA, K., NOMURA, A., FUKATA, H. & UENO, H. (1952). **[Investigation on a diarrhoea of fowl in Nagasaki Prefecture.]**—*24th Rep. Govt. exp. Sta. Anim. Hyg., Tokyo*, 1952. pp. 63-75. [In Japanese. English summaries.] 2769

II. WATANABE, M., YAMANO, T., MIFUNE, R. & OOCHI, T. (1952). **[An avian diarrhoea (similar to avian monocytosis.). I. Clinical findings and blood picture.]**—*Ibid.* pp. 49-53. 2770

III. KAWASHIMA, H., SATO, T., MIFUNE, R. & HANAKI, T. (1952). **[A diarrhoea of the fowl resembling " Pullet " disease.]**—*Ibid.* pp. 29-38. 2771

IV. MOCHIZUKI, H. SUGAWA, Y., SHIBATA, D. & MIYAIRI, K. (1952). **[Pathological studies on a diarrhoea of fowl (avian monocytosis?).]** —*Ibid.* pp. 39-48. 2772

V. WATANABE, M., YAMANO, T., MIFUNE, R. & OOCHI, T. (1952). **[An avian diarrhoea (similar to blue comb). II. Isolation of the causal agent (a virus).]** — *Ibid.* pp. 55-62. 2773

VI. WATANABE, M. (1952). **[" Pullet disease " in Japan.]**—*J. Jap. vet. med. Ass.* **5**, 109-113. [In Japanese.] 2774

I. An account of studies on diarrhoea in fowls which occurred on 9 farms in Nagasaki Prefecture in 1949; the incidence was 46% and mortality 18%. Bacteriological findings were negative, but the infection was serially transmitted for 4 generations in chicks.

II. The symptoms included depression, inappetence, diarrhoea, the droppings being whitish or watery distension of the crop; blueness of the comb, and a decrease in egg production. Monocytosis occurred in both spontaneous and experimental infections.

III. Attempts to isolate a virus or a bacterial agent from 1948 onwards had yielded negative results.

IV. P.M. examination of fowls that had died revealed necrosis of the liver in acute or subacute cases, uric nephritis in subacute cases and severe monocytosis identical with that of avian monocytosis described in the U.S.A.

V. Two strains of a filtrable agent were isolated from the intestinal contents (filtrate through Chamberland L2 or L3) of fowls affected with the acute disease. The virus can be cultivated in the allantoic cavity of 8-day-old chick embryos, causing their death in 36–72 hours. The disease was set up in healthy birds by the inoculation of the virus.

VI. W. isolated a virus from fowls affected with a condition characterized by diarrhoea and resembling pullet disease; he reproduced the disease in healthy fowls by i/v inoculation and by administration *per os*.—KOGI SAITO.

MEYER, K. F. (1953). **Psittacosis group.**—*Ann. N.Y. Acad. Sci.* **56**, 545-556. [Author's summary and recommendations copied *verbatim*.] 2775

The large intracellular parasites—(1) responsible for diverse, spontaneous, clinical and latent infections in birds, mammals, and man;

(2) readily stained by basophilic dyes; (3) antigenically related, as evidenced in complement-fixation, cross-immunity and toxin-neutralization tests; (4) capable of producing pneumonitis in the laboratory mouse when introduced by the intranasal route; (5) growing well in the yolk sac of the embryonated egg; and (6) susceptible to the action of certain chemotherapeutic agents—form a distinct biologic group. Since the basic characteristics of this group were recognized first in the agent responsible for psittacosis, and not until several years later in that of lymphogranuloma venereum, the group should be designated the psittacosis-lymphogranuloma venereum group. The investigator, Bedson, responsible for the elucidation of the morphologic, physiologic, and immunologic properties of this group, should be recognized, and the nomenclature proposed by Moshkovsky and, unfortunately, adopted in the Bergey System should be discarded. The criteria for placing in this group the known agents and any others that may be discovered should be defined by an international group of workers familiar with these parasites. The creation of a family, genera, and species by expert taxonomists should be deferred until further knowledge justifies this step.

MEYER, K. F. & EDDIE, B. (1953). **Identification of psittacosis viruses.**—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. 2, pp. 78-80. [In English. Only abst. given. Abst. from abst.] **2776**

The authors discussed methods of classifying viruses of the psittacosis-lymphogranuloma group by means of pathogenicity, c.f., and neutralization tests. They criticized the use of the name *Miyagawanella,* and the choice of lymphogranuloma venereum as the type species of this genus.—R.M.

CHU, H. P. (1953). **The agglutination of spermatozoa by viruses of influenza, mumps and Newcastle disease.**—*Proc. VIth Congr. int. Microbiol., Rome.* 1953. 2, pp. 20-21. [In English. Only abst. given. Abst. from abst.] **2777**

C. described agglutination of human, bovine or avian spermatozoa by the viruses of influenza (types A and B), mumps, and Newcastle disease. The nature of this phenomenon was similar to r.b.c. agglutination by these viruses. Viruses of vaccinia and avian infectious bronchitis did not agglutinate spermatozoa. —R.M.

PHILIP, C. B. (1953). **Nomenclature of the Rickettsiaceae pathogenic to vertebrates.**—*Ann. N.Y. Acad. Sci.* 56, 484-494. [Author's summary modified.] **2778**

P. reviewed the nomenclature, listing 68 references.

The family Rickettsiaceae pathogenic for vertebrates and arthropod-adapted, on the basis of present technical and nomenclatorial information, is considered to comprise four genera—*Rickettsia, Ehrlichia, Cowdria,* and *Coxiella.* Seven species fall into three subgenera of the first, namely: *Rickettsia* (*Rickettsia*) *prowazekii* (genotype species), *R.* (*R.*) *typhi, R.* (*Zinssera*) *tsutsugamushi, R.* (*dermatocentroxenus*) *rickettsii, R.* (*D.*) *conorii, R.* (*D.*) *australis,* and *R.* (*D.*) *akari,* plus three *incertae sedis—R. quintana, R.* (?) *melophagi,* and *R. suis. Ehrlichia* contains *E. canis* (genotype species), *E. bovis, E.* (?) *ovina,* and *E.* (?) *kurlovi.* The other two genera are monotypic for *Cowdria ruminantium* and *Coxiella burnetii,* respectively. Many names are included in synonymy, partly it is pointed out, because of inattention to the Bacteriological Rules of Nomenclature.

ČERNÝ. DRAŽAN. LAX. ZENDULKA. (1953). Infekční kerato-conjunctivitis skotu. [**Infectious keratoconjunctivitis in cattle.**]—*Veterinářství, Brno.* 3, 226-229. **2779**

The authors described the clinical picture of rickettsial keratoconjunctivitis in 41 calves aged 2–7 months, of a herd of 45. In 31 both eyes were affected.

The condition was reproduced in a healthy calf from a different herd by application into the conjunctival sac of eye discharge from an infected calf. The calves were divided into groups, one group serving as controls and the others were treated with rivanol [a proprietary acridine dye], penicillin, chloramphenicol and sulphathiazole, respectively. The authors stated that penicillin gave best results but that experiments on so small a scale could not be regarded as conclusive.—E.G.

BALDELLI, B. (1951). Siero-latto-reazione per la diagnosi della febbre Q negli ovini. [**Complement-fixation test using whey, in the diagnosis of Q fever in sheep.**]—*Boll. Soc. ital. Biol. sper.* 27, 998-1001. **2780**

B. carried out c.f. tests over periods of up to 95 days with milk whey from 8 sheep with positive blood agglutination titres against *R. burneti.* The results agreed with those obtained by inoculation of g. pigs with the milk.—R.M.

ABINANTI, F. R., LENNETTE, E. H., WINN, J. F. & WELSH, H. H. (1953). **Q fever studies. XVIII. Presence of *Coxiella burnetii* in**

the birth fluids of naturally infected sheep.—*Amer. J. Hyg.* **58,** 385-391. [Abst. from authors' summary.] **2781**

Samples of birth fluid collected from 34 naturally infected sheep by puncturing the protruding ' water bag ' at the time of parturition, were examined for the presence of *Rickettsia burneti*. Four were found to be infective for hamsters, the rickettsial content ranging from 1–10 to 10,000–100,000 hamster infective doses per ml. In 29 sheep from which both placenta and birth fluids were available, infected fluids were always associated with an infected placenta, but not *vice versa*.

Birth fluids provide an additional means by which parturition in the naturally infected animal may lead to contamination of the enviroment of lambing operations.

I. Morozzi, A. (1951). Isolamento ed identificazione di *C. burneti* delle orine di ovini infetti. [**Isolation of** *R. burneti* **from the urine of infected sheep.**]—*Boll. Soc. ital. Biol. sper.* **27,** 1001-1003. **2782**

II. Morozzi, A. (1951). Infezione sperimentale da *C. burneti* negli ovini. [**Experimental** *R. burneti* **infection in sheep.**]—*Ibid.* 1003-1004. **2783**

I. By means of g. pig inoculation, M. showed that *R. burneti* was present in the urine of 8 naturally infected sheep which gave positive c.f. tests but showed no symptoms.

II. M. described the infection of 4 sheep by i/m and s/c injection, by injection into the parenchyma of the udder, and by contamination of the teat duct with infective material. —R.M.

Caminopetros, J. (1953). Le cycle évolutif de la *Rickettsia burnetti* (var. *caprina*) agent de la bronchopneumonie méditerranéenne chez l'homme et la chèvre domestique, reservoir par excellence du virus. [*Rickettsia burneti* **causing bronchopneumonia in man and goats.**]—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. **2,** pp. 237-238. [In French. Only abst. given. Abst. from abst.] **2784**

A brief account of Q fever in Greece amongst the armies of occupation, and its transmission by goats. [See also *V.B.* **20,** 231.] —R.M.

Ormsbee, R. A. (1953). **Soluble antigen and antibiotic resistance as factors in the classification of** *Coxiella burnetii*.—*Proc. VIth Congr. int. Microbiol., Rome,* 1953. **2,** p. 255. [In English. Only abst. given. Abst from abst.] **2785**

The author extracted a soluble antigen from *Rickettsia burneti* with ether. This antigen represented 10–30% of the total antigen present in the organisms. He suggested that resistance to chemotherapeutic agents, particularly Dd-threo-2-dichloroacetamido-1-(4-methylsulfonylphenyl)-1,3-propanediol, was a more reliable criterion for distinguishing *R. burneti* from other pathogenic rickettsia than the presence or absence of soluble antigen.—R.M.

See also absts. **2832** (a virus in leucosis in a dog); **2874** (virus diseases of the camel); **2950** (sterility caused by infectious disease in S. Africa).

IMMUNITY

Silverstein, A. M. (1954). **Studies on the complement function: apparent anomalies of the complement function.**—*J. Immunol.* **72,** 187-190. [Author's summary slightly modified.] **2786**

The fixability of g. pig complement (C) was found to be quite different from that of human C. The observed antibody titre of an immune serum may be raised or lowered by employing for the fixation test one of the several modified C reagents in admixture with normal C. Alterations of normal C component ratios produce C solutions which are quantitatively identical in haemolytic potency but qualitatively different in fixation to an immune complex.

A non-additivity of C haemolytic potency units exists under the conditions of partial fixation to an immune complex, and is a function of the extent of that fixation. The unit of haemolytic activity measured before fixation seems to be different from that measured afterwards, indicating the necessity to examine more deeply the exact functions of C components in fixation and haemolysis.

The addition of increasing amounts of three C components for the estimation of the " titre " of the remaining component results in a continual increase in titre, never quite reaching the limiting asymptotic value. Haemolytic activity would appear to be a function of the active concentrations of all of the components, not only of that component present in " limiting amounts " as postulated previously.

GARVEY, J. S. & CAMPBELL, D. H. (1954). **The relation of circulating antibody concentration to localization of labelled (S^{35}) antigen.**—*J. Immunol.* 72, 131-138. [Authors' summary modified.] 2787

Significant differences in tissue localization of antigen occurred in rabbits when the titre of circulating antibody was greater than 0·1 mg.N. The increased uptake of antigen by the lungs of immune animals may be largely attributed to hypersensitive reaction of this tissue, whereas the greater localization in the liver represents complexing of antigen with circulating antibody.

A method of acid-salt dissociation was found useful in isolating the antigen and antibody from the immune complexes obtained as insoluble material in a perfusate from liver tissue.

There was no apparent redistribution of antigen when the usual 6-hour test period for localization was extended to 72 hours.

MAURER, P. H. (1954). **The cross reactions between albumins of different species and gamma globulins of different species.**—*J. Immunol.* 72, 119-122. [Abst. from author's summary.] 2788

Using quantitative immunochemical techniques, M. demonstrated reciprocal *in vitro* reactions between various albumins and γ-globulins of different species.

DIXON, F. J., MAURER, P. H. & DEICHMILLER, M. P. (1954). **Primary and specific anamnestic antibody responses of rabbits to heterologous serum protein antigens.**—*J. Immunol.* 72, 179-186. [Authors' summary copied *verbatim.*] 2789

In the primary and anamnestic antibody responses to heterologous serum protein antigens rapid antibody synthesis ceases with or shortly after the disappearance of detectable antigen. In the primary response there was no conclusive evidence of continued antibody production after the disappearance of antigen. In the anamnestic responses, however, antibody continued to be produced at a low level for more than 6 months after antigen could no longer be detected.

HARRIS, S., HARRIS, T. N. & FARBER, M. B. (1954). **Studies on the transfer of lymph node cells. I. Appearance of antibody recipients of cells from donor rabbits injected with antigen. II. Effects of experimental manipulation of the donor system.**—*J. Immunol.* 72, 148-160 & 161-171. [Authors' summaries modified.] 2790

I. Following the injection of dysentery bacilli, and other antigens, into the hind foot pad of rabbits, the popliteal (regional) lymph nodes were excised. The lymph node cells were teased free, washed and sedimented by centrifugation and were then injected i/v into normal rabbits. Antibody to the antigen injected into the donor animals appeared in the sera of the recipients on the first day after transfer, rose in titre on the second and third day and began to decline on the fifth or seventh day, being no longer measurable by the 23rd to 40th day.

When the cells were frozen and thawed 3 times in a dry-alcohol bath, lysed with distilled water, heated at 52°C. for 20 min., or incubated at 37°C. for 24 hours, they were no longer capable of giving rise to the appearance of antibody when transferred to recipients. Following these treatments the cells were found to take up trypanblue dye *in vitro*, indicating that they were injured or no longer viable. Similar treatments were found not to affect the antibody titre of a hyperimmune anti-*Shigella* serum nor the antigenicity of dysentery bacilli.

Storage of teased lymph node cells at 4°C. for 24 hours, or repeated washing of such cells, did not inactivate the transfer effect, but reduced it in proportion to the number of the cells lost or injured by such treatment, injury being judged by the uptake of trypanblue dye.

The authors discussed possible explanations for the transfer effect. They considered it unlikely that either transfer of pre-formed antibody contained within the cells or transfer of antigen which would cause active immunization could account for all the antibody found in the recipients' sera. They suggested that the transferred cells might contain a mechanism of antibody formation.

II. When cells, teased from various lymph nodes and from the spleen of rabbits which had been given injections of *Sh. paradysenteriae* into the hind foot pads, were transferred to fresh rabbits, it was found that agglutinins to the *Shigella* appeared regularly in the sera of the rabbits receiving cells of the popliteal lymph nodes, and only occasionally, to much lower titre, in recipients of splenic cells. If the same dose of antigen was injected i/v into the donors it was found after cell-transfer that agglutinins to dysentery bacilli appeared regularly in the sera of recipients of splenic cells and occasionally, in much lower titre, in the recipients of cells of the popliteal lymph nodes. In neither case did agglutinins appear in the recipients of cells of the mesenteric lymph nodes of the donor animals.

Following repeated injections of *Sh. paradysenteriae* into the foot pads of donors the regional lymph nodes were larger and yielded more cells than when a single injection was given. Following the transfer of such cells the agglutinin titres of the recipients' sera were usually similar to, and occasionally lower than, those observed in the case of a single injection of antigen.

When dysentery bacilli were injected into the hind foot pads of rabbits together with 3 other antigens, antibodies to all 4 antigens were found in sera of the recipients of cells of the regional lymph nodes, and the titres of anti-*Shigella* agglutinins in these animals were similar to those found in the recipients of cells from lymph nodes draining the site of injection of dysentery bacilli alone.

When donor rabbits were treated with cortisone the lymph nodes were smaller and yielded approx. one-sixth the number of cells of control donors, but the cells so derived were usually as effective as those of non-hormone treated controls. Popliteal lymph node cells derived from normal donors 4 days after their injection with dysentery organisms were as effective in cortisone-treated recipients as in control animals. However, when the cells were obtained 2 days after the injection of the donors with antigens, and transferred to cortisone treated recipients and to controls, the agglutinin titres of the former were in some instances lower than those of the non-hormone treated animals.

Donaldson, D. M. & Marcus, S. (1954). **Serological aspects of the suppression of normal bactericidal action of rabbit serum following whole body X-irradiation.**—*J. Immunol.* 72, 203-208. [Authors' summary modified.] 2791

The loss or suppression of the normal bactericidal activity of rabbit serum following 650 to 725 r of whole body X-irradiation was not due to a substance in the sera of irradiated rabbits which inhibits normal bactericidal activity. The bactericidal action of serum from normal rabbits was not decreased following the addition to it of serum from X-irradiated rabbits.

Titrations were carried out with sera from non-immunized X-irradiated and control rabbits to determine natural agglutinin levels, using suspensions of sheep r.b.c. and *Bacillus subtilis* as antigens. The amount of circulating natural agglutinin was not significantly altered in the sera of X-irradiated rabbits with suppressed bactericidal activity.

Complement concentrations determined at a time when the sera from irradiated rabbits showed suppressed bactericidal activity were of the same magnitude in X-irradiated and control rabbits.

Addition of either E or M fractions of g. pig complement failed to restore the bactericidal activity of sera from X-irradiated rabbits.

Lazear, E. J. & Ferguson, L. C. (1953). **Bovine erythrocyte antigens. I. The effect of time, temperature and concentration of cells on absorption of antibodies from isoimmune serum.** — *J. Immunol.* 71, 12-15. 2792

Cohen, C. & Ferguson, L. C. (1953). **Bovine erythrocyte antigens. II. Quantitative studies on the hemolytic test.** — *Ibid.* 15-22. 2793

Royal, G. C., Ferguson, L. C. & Sutton, T. S. (1953). **Bovine erythrocyte antigens. III. The isolation of blood-group specific substances from erythrocytes.** — *Ibid.* 22-25. [Authors' summaries modified.] 2794

I. The temperature to which the serum-cell mixture was exposed had little effect upon the rate of antibody absorption. However, extreme temperatures above and below room temperature usually reduced the homologous titre with little or no effect upon the heterologous titre. The optimal absorption time was approx. 30 min. After this time the homologous and heterologous titres tended to level off and closely parallel each other. The optimal cell volume was dependent upon the serum used. In no case was the volume greater than 50% when the optimal dilution of serum and temperature were used in the absorption. The cell volume should be kept to a minimum.

The optimal dilution for each serum sample was dependent upon the complexity of the serum and the respective titres for the samples of homologous and absorbing blood. As a general rule, dividing the titre for the absorbing blood by 8 gives a dilution of serum satisfactory for absorption.

II. The reactivity of selected serum reagents used in identifying certain bovine erythrocytic antigens was studied quantitatively by varying the concentrations of antibody and complement independently. The serum reagents examined in this way ranged from those which acted rapidly to those which failed to produce complete lysis even after extended incubation. The authors postulated the presence of an inhibitor, possibly a non-haemolytic antibody, to explain the slower action of certain serum reagents. A comparison between

rabbit and guinea pig sera as sources of complement suggested that compatibility is a matter of individual specificities rather than of species specificity.

III. The authors isolated a nitrogen-containing polysaccharide from bovine r.b.c. It was capable of reacting specifically with several of the typing sera for bovine cellular antigens. The antigens extracted were non-antigenic in rabbits and could best be demonstrated by means of inhibition tests.

RAMON, G. (1953). Les " vaccinations associées " en médecine humaine et en médecine vétérinaire. **[Combined vaccination in human and veterinary medicine.]**—*Rev. Immunol.* **17,** 295-323. [English summary.] **2795**

Polyvalent immunization often results in greater immunity than that produced by separate injections. Tetanus-staphylococcus, tetanus-anthrax, anthrax-blackleg, anthrax-caseous lymphadenitis, anthrax-sheep pox, Newcastle disease-fowl pox and fowl pox-fowl cholera mixtures have been used in veterinary medicine. The greatest advantage appears to be obtained when a bacterial vaccine is added to a toxoid, acting as an adjuvant.

—J. E. SMITH.

WERTMAN, K., SMITH, L. W. & O'LEARY, W. M. (1954). **The effects of vitamin deficiencies on some physiological factors of importance in resistance to infection. I. Niacin-tryptophane deficiency.**—*J. Immunol.* **72,** 196-202. **2796**

The authors studied physiological factors of resistance to infection in groups of male white rats (a) maintained on a diet deficient in niacin and tryptophane and in controls fed (b) an " inanition " diet and (c) *ad libitum.* While the total erythrocyte and leucocyte counts in the 3 groups did not differ significantly, differential cell counts in blood films indicated an increase in polymorphonuclear leucocytes in groups (a) and (b) with a slight reduction in lymphocytes in most cases. Complement activity was not demonstrable in the sera of group (a). Comparison of exudate removed from inflamed areas revealed a relative granulocytosis and lymphopenia in groups (a) and (b). Capillary permeability as measured by the Menkin dye accumulation technique appeared to be unaffected in spite of significant differences in migration of cells. Bone marrow smears from the tibia revealed a lymphopenia in groups (a) and (b).—F.E.W.

DOUGHERTY, T. F. (1953). **Some observations on mechanisms of corticosteroid action on inflammation and immunologic processes.**—*Ann. N.Y. Acad. Sci.* **56,** Art. 4. pp. 748-756. **2797**

Administration of adrenocortical steroids produces a reversible involution of lymphatic tissue. Release of preformed antibody from lymphocytes is accelerated, but antibody synthesis is diminished, and the amount of circulating antibody usually falls. These effects are not considered to explain the value of cortisone in hypersensitive states, *e.g.* asthma.

The fundamental mechanism of the anti-phlogistic action of cortisone is unknown, though a great variety of incidental effects (*e.g.* hyaluronidase inhibition and histamine binding) are recorded.—J. E. SMITH.

HOLMES, R. (1953). **The occurrence of blood groups in cats.**—*J. exp. Biol.* **30,** 350-357. [Abst. from author's summary.] **2798**

H. described methods which he used to investigate isoagglutination reactions of the blood of cats. He presented evidence indicating that cats possess at least three blood groups. He showed that a genetical system for the cat groups similar to the human ABO system is untenable. He discussed two other possible systems similar to the A_1A_2O, and to the *Rh* models of human beings.

DOLL, E. R., RICHARDS, M. G., WALLACE, M. E. & BRYANS, J. T. (1952). **The influence of an equine fetal tissue vaccine upon hemagglutination activity of mare serums: its relation to hemolytic icterus of newborn foals.** —*Cornell Vet.* **42,** 495-505. **2799**

An account of a study in 783 pregnant mares. The i/m administration of equine virus abortion vaccine, made from lung tissue of aborted foetuses, was shown to cause a transient rise in isoagglutinins in the serum of mares previously immunized. The rise in titre from this cause could be distinguished from transplacental immunization occurring late in pregnancy. About 7% of normal mares were immunized against blood group factors for the first time by the use of this vaccine which was thus shown to be a possible, but not the only, cause of iso-immunization leading to haemolytic disease in the foal. It is more dangerous to give the vaccine in the last 3 months of pregnancy.

The authors also studied the re-immunization transplacentally of 28 mares already immunized against blood group factors. The low rate of re-immunization suggested that placental abnormality might be a determining factor.

—G. FULTON ROBERTS.

DOLL, E. R. & BROWN, R. G. (1954). **Isohemolytic disease of newborn pigs.**—*Cornell Vet.* **44,** 86-93. [Abst. from authors' summary.] **2800**

The authors described naturally occurring isoimmunization of a sow and haemolytic disease of two successive litters of new-born piglets. The latter were vigorous and healthy at birth but died from acute anaemia within 9 to 20 hours. Isohaemagglutinin was present in the sow's serum and colostrum, but haemolysin could not be detected. The mechanism of the isoimmunization was not apparent. The authors described procedures for diagnosis by plate agglutination tests.

RIEK, R. F. (1954). **Studies on allergic dermatitis (Queensland itch) of the horse: the aetiology of the disease.**—*Aust. J. agric. Res.* **5,** 109-129. [See also *V.B.* **24,** 478 & 2022.] **2801**

The disease is considered identical with a dermatitis reported from India, the Philippine Islands and the U.S.A., of which the skin-infesting microfilariae of *Onchocerca reticulata* are claimed to be the cause. Investigations showed that the microfilariae were not the cause of the disease in Australia.

Queensland itch is an allergic dermatitis caused by the bites of a sandfly, *Culicoides robertsi*. In susceptible horses in summer, histamine levels in the blood fluctuated widely during the day and reached maximum values between 6 p.m. and 9 p.m., coinciding with the period of greatest activity of the sandflies. Horses which were kept in insect-proof stables between 4 p.m. and 7 a.m. did not develop the disease.

I/d tests with antigen prepared from a variety of biting insects gave positive results in susceptible horses only with *C. robertsi* antigen.

The absence of immune antibodies in non-susceptible horses is regarded as evidence that their freedom from the disease is due to an inherent immunity and not to an acquired immunity or to desensitization.

—H. McL. GORDON.

SOLOTOROVSKY, M. & WINSTEN, S. (1954). **Inhibition of fatal anaphylactic shock in the mouse with cortisone.**—*J. Immunol.* **72,** 177-178. [Authors' summary copied *verbatim.*] **2802**

Cortisone reduced the incidence of fatal anaphylactic reaction in the mouse. The effective dosage range approaches that used in man. The degree of protection is directly related to the dosage of cortisone.

See also absts. **2594** (effect of killed staphylococci on immunity produced in cattle by staphylococcal toxoid); **2621** (avirulent vaccine against swine erysipelas); **2634** (immunological study on *S. abortus-equi*); **2677** (immunology of some protozoan flagellates); **2697** (variants of F. & M. disease virus); **2702** (inheritance of resistance to F. & M. disease); **2738-2740** (immunity ot rinderpest); **2746** (effect of exposure to swine fever virus before and after vaccination).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

KNIPLING, E. F. (1953). **The greater hazard—insects or insecticides.**—*J. econ. Ent.* **46,** 1-7. **2803**

In this presidential address, K. deplored the exaggerated reports of the toxicity to mammals of D.D.T., and other chlorinated hydrocarbon insecticides, and drew attention to the benefits to mankind which have resulted from the use of these compounds. He made a plea for co-ordinated entomological, chemical, and toxicological investigation, to develop insect control measures with the minimum of hazard, and educate the public in their proper use .

—D. W. JOLLY.

WILSON, S. G. (1953). **The control of *Glossina palpalis fuscipes* Newstead in Kenya Colony.**—*Bull. ent. Res.* **44,** 711-728. [Author's summary modified.] **2804**

Of the various methods for the eradication of *G. palpalis* that have been tried in Kenya, hand-catching has the most limited application. Total and discriminative bush-clearings of the river banks have been used on a considerable scale and W. reviewed progress on the Yala, Magori, and Nyando rivers. The decrease in fly-populations caused by these clearings is gradual; but complete eradication may be achieved. Maintenance of the clearings is however difficult; the initial cost varied from £200 to £300 per mile of bank and it was often difficult to obtain sufficient labour.

The use of 5% D.D.T. sprays on the fringing vegetation along 20 miles of the Mbogo river gave dramatic results and *G. palpalis* was eradicated at a cost of £42 per mile. The rate of application was 15 to 20 lb. of D.D.T. per acre and the residual effect lasted for at least 14 days during dry weather, but was rapidly lost during the rains. Spraying along the Ainamotua river gave equally promising results.

Areas under treatment, either by hand-catching, bush-clearing or spraying with D.D.T., must be properly isolated from other

tsetse-infested areas if quick results are to be achieved.

LEGG, J. (1953). **A further note on the control of cattle tick (*Boophilus microplus*) by the use of synthetic insecticides.**—*Aust. vet. J.* **29,** 200-201. **2805**

Preliminary tests revealed that 0·1% aldrin (the endo-exo-isomer of hexachloro-hexahydro-dimethanonaphthalene) killed all ticks up to the young female stage. Some old females survived and laid viable eggs. Heptachlor at 0·15% killed all ticks. TTC (described as chlorocyclohexane trithiocarbonate) killed nearly all adult females, but a few nymphs in the moult survived.

The insecticides were applied by hand spraying and no ill-effects were observed.

—H. McL. GORDON.

NAI, D. D. (1953). Una malattia trascurata: la rogna bovina. **[Bovine mange in Italy.]** —*Gazz. Vet., Milan.* No. 4. pp. 7-14. **2806**

Mange of one or another type was present in 15% and 10% of cattle herds in the provinces of Milan and Pavia respectively.—R.M.

ROBERTS, I. H. & ROGOFF, W. M. (1953). **Organic insecticides for the control of swine mange.**—*J. Amer. vet. med. Ass.* **123,** 227-233. **2807**

Lindane (benzene hexachloride), chlordane (a chorinated naphthalene derivative), toxaphene (chlorinated camphene), neotran [*bis* (*p*-chlorophenoxy) methane] and aramite [a product containing 2-(*p*-tertiary butylphenoxy) isopropyl-1-methylethyl 2-chloroethyl sulphite] were tested by spraying on pigs with sarcoptic mange, particular care being taken to ensure that the inner surfaces of the ears were wetted. Lindane 0·1% killed the mites and it alone killed those which were in the ears. Variation in the pressure of application made no appreciable difference in the efficacy of the acaricides.

—JAS. G. O'SULLIVAN.

PARASITES IN RELATION TO DISEASE [HELMINTHS]

SOBIECH, T. (1951). Rozpoznawanie motylicy u bydła za pomocą odczynu śródskórnego. **[A skin test for diagnosis of liver fluke infestation in cattle.]**—*Polsk. Arch. Weteryn.* **1,** 213-230. [English and Russian conclusions.] **2808**

S. stated that an i/d test was of diagnostic value in liver fluke infestation in cattle, especially in the earliest stages when clinical examination and faecal egg counts give negative results. The best results were obtained using antigen diluted 1:250 or 1:500, injected into the caudal skin fold or the neck. Superimposed infestation probably interferes with the reaction to the test. The results were controlled at P.M. examination.—J. R. MITCHELL.

DENNIS, W. R., STONE, W. M. & SWANSON, L. E. (1954). **A new laboratory and field diagnostic test for fluke ova in feces.**—*J. Amer. vet. med. Ass.* **124,** 47-50. [Abst. from authors' summary.] **2809**

After repeated washing with 15 ml. of a liquid detergent per g. faeces, the sample is strained through a funnel and 1–3 drops of tincture of iodine are added. The ova stain reddish to dark brown and are clearly discernible on the bottom of the dish. The small quantity of faecal débris which remains is clear and does not interfere with the reading.

URQUHART, G. M. (1954). **The rabbit as host in experimental fascioliasis.**—*Exp. Parasit.* **3,** 38-44. **2810**

Cercariae adhering to cellophane placed in cabbage stalks were used to give accurate dosage *per os*. Breed and sex of rabbits had no significant effect on infestation.

—E. J. L. SOULSBY.

CHANCE, M. R. A. & MANSOUR, T. E. (1953). **A contribution to the pharmacology of movement in the liver fluke.**—*Brit. J. Pharmacol.* **8,** 134-138. **2811**

Entire *F. hepatica* and degangliated specimens were exposed to various drugs and movements were studied by kymograph. Acetylcholine chloride did not affect the entire fluke, but in the degangliated specimens it caused initial depression followed by recovery. Carbachol caused complete paralysis in both. The effect of eserine was similar but slower. Nicotine caused rapid contraction followed by partial relaxation. Curare and atropine caused partial block of acetylcholine and carbachol, but not eserine.—C. C. BANNATYNE.

LIANG-YU WU, KINGSCOTE, A. A. (1954). **Further study on *Lymnaea stagnalis* (L.) as a snail host for *Fascioloides magna* (Bassi, 1875) (Trematoda).**—*J. Parasit.* **40,** 90-93. [Authors' summary modified.] **2812**

The eggs of *F. magna* from the liver of an elk incubated at 70° to 75°F. began to hatch in 6 weeks. The rediae took over 4 months to complete development.

The stages were completed in laboratory bred *L. stagnalis* in 5 months and 4 days. The number of cercariae in each daughter redia varied from one to six. Rediae developed in the respiratory chamber, and in the tissue of the liver, mantle and margin of the foot of the snail, and were also attached loosely to the external surface of the digestive tract and other soft tissues.

HOFFMAN, D. O. & ZAKHARY, R. (1953). **The relationship of exposure time to the molluscicidal activity of copper sulfate.**—*Amer. J. trop. Med. Hyg.* **2,** 332-336. [Abst. from authors' summary.] **2813**

In a study of the relationship between molluscicidal activity and exposure time, *Biomphalaria boissyi* were exposed to copper sulphate in pond water at 20°C. for various lengths of time. Expressed in terms of $CuSO_4.5H_2O$, the LD_{50} decreased from 55 p.p.m. following a 6-hour exposure period to 1·35 p.p.m. after an exposure of 72 hours. From a comparison of these data with the results of other workers the authors concluded that the use of tap water in copper sulphate evaluation tests results in a considerably higher mortality than the use of natural waters from sites favourable for snail colonization. This effect is not due to the presence in natural water of factors which rapidly remove copper sulphate from solution.

BEARUP, A. J. (1953). **Life history of a spirometrid tapeworm, causing sparganosis in feral pigs.**—*Aust. vet. J.* **29,** 217-224. **2814**

The difference between the genera *Dibothriocephalus* (*Diphyllobothrium*) and *Spirometra* were tabulated and a general outline of the life-cycle of the latter was given. The spargana found in feral pigs in Australia were identified as the pleroceroids of *S. erinacei*. The mature tapeworm developed in cats and dogs which were given spargana from pigs and tadpoles and from mice infested by administration of spargana from tadpoles. One mouse was infested by administration of proceroids in a water flea (Cyclopidae). Spargana in tadpoles persisted when fed to frogs, mice, rats and pigs. Spargana from a pig persisted when fed to a rabbit.—H. McL. GORDON.

SHELTON, G. C. & BAILEY, W. S. (1953). **Experimental infection of the chinchilla with *Hymenolepis nana* var. *fraterna*.**—*J. Parasit.* **39,** 533-534. [Authors' summary modified.] **2815**

The prepatent and patent periods of *H. nana* in 8 chinchillas (*Chinchilla laniger*) ranged from 15–22 days and 16–51 days respectively. The percentage development of eggs to mature worms was 2·68 and 2·32 in two chinchillas examined. These worms were found well within the lower half of the small intestine. Except in one chinchilla, to which *Giardia* cysts were also administered, no clinical symptoms developed.

SHELTON, G. C. (1953). **Re-examination of some aspects of the hydatid tapeworm *Echinococcus granulosus* (Batsch 1786).**—*N. Amer. Vet.* **34,** 487-490. **2816**

S. discussed published work on the morphology and life cycle of *E. granulosus*. Of two dogs fed echinococcus cysts from sheep, one developed mature tapeworms in 10 weeks. —D. POYNTER.

ENIGK, K. (1952). Pathogenität und Therapie des Strongyloides-befalles der Haustiere. [**Pathology and therapy of *Strongyloides* infestation of domestic animals.**] — *Mh. prakt. Tierheilk.* **4,** 97-112. **2817**

Percutaneous administation of *Strongyloides* larvae to pigs, nutrias, rabbits, g. pigs, hamsters, rats and mice produced moderate pruritus and this infestation could introduce bacteria into the skin. Migrating larvae in the lungs and kidneys produced a little haemorrhage. As the effects are purely mechanical, clinical symptoms are related to the number of larvae and the size of the host. Mature worms occur mainly in the small intestine and occasionally in the gall bladder and main bile duct, the bronchi, and the ureters. The age of the host is an important factor in the pathogenicity of the parasite. Of 19 anthelmintics tested for their efficiency against *Strongyloides* in nutrias, the only effective ones were an aqueous soln. of gentian violet and a proprietary preparation containing crystal violet.—M. L. CLARKE.

AJMERITO, G. (1954). La terapia della tricocefalosi canina. [**Treatment of *Trichuris vulpis* infestation in dogs.**]—*Progr. vet.*; *Torino.* **9,** 103, 105-106 & 108. **2818**

The author considered that thymol was the best anthelmintic against *T. vulpis*, and successfully treated 25 dogs by the simultaneous administration of 2 g. in aqueous suspension by stomach tube and 5 g. in aqueous suspension

per rectum. This was repeated 3 times, with an interval of 5–6 days between each treatment.—R.M.

KETZ, H. A. (1952). Über Trichinenfütterungsversuche beim Syrischen Goldhamster. [**Infestation of hamsters with *Trichinella spiralis* by ingestion.**]—*Arch. exp. VetMed.* **6**, 262-271. **2819**

Hamsters are ideal test animals for feeding experiments with *T. spiralis*. When fed small portions of infested meat, sexually mature intestinal forms were seen in 4–7 days, migrating forms from the 9th day, fully developed muscle forms from the 21st day and encapsulation had occurred by the 28th day onwards.

—W. G. SILLER.

LARSH, J. E., JR. (1953). **Studies in old mice to test the hypotheses of local and general immunity to *Trichinella spiralis*.**—*J. infect. Dis.* **93**, 282-293. [Abst. from author's summary.] **2820**

Uninfested mice were given intracaecally one or two doses each of 300 *T. spiralis* larvae, and infested controls were given similar stimulating doses orally. To test the immunity, both groups, and controls not previously infested, were given a challenging dose of 300 larvae by mouth. The number of adult worms recovered seven days later was used as the criterion of immunity. The two groups of mice given the stimulating dose(s) were equally capable of developing acquired immunity. These results excluded the operation of local immunity and demonstrated the role of general immunity to *T. spiralis* in old mice. The authors presented evidence to support the suggestion that, in this host, the immunity is due to the primary action(s) of antibodies with secondary cellular co-operation.

MÜLLER, B. (1953). Über die Entwicklung und Differenzierung der Trichonema-Larven in der Darmwand des Pferdes. [**Development and differentiation of *Trichonema* larvae in the intestinal wall of horses.**]—*Arch. exp. VetMed.* **7**, 58-84 & 153-175. **2821**

M. described three main groups of larvae, the most prominent morphological differences lying in the mouth capsule. Group A included the smallest larvae and these were without mouth tube or mouth capsule formation. Group B larvae were distinguished by a tube formation in the mouth structure and group C larvae possessed a well developed mouth capsule. He described certain variant types occurring within these groups.—E. J. L. SOULSBY.

MAYHEW, R. L. (1954). **Studies on bovine gastro-intestinal parasites. XVII. Feeding small amounts of phenothiazine during the prepatent period in pure infections of the nodular worm.**—*Proc. Helm. Soc. Wash.* **21**, 10-14. **2822**

Symptoms and death of cattle from infestition with *Oesophagostomum radiatum* were not prevented when phenothiazine was fed at the rate of 1·5 g. daily from the beginning of the prepatent period. The continuous feeding of small amounts should be employed to reduce the infestation on premises known to be heavily contaminated. There was no evidence of therapeutic value, nor of prophylactic value on heavily contaminated premises, but some protection is to be expected for the next generation of animals in that the worm egg counts are reduced.

BORCHERT, A. & POLZIN, H. (1952). Praktische Erfahrungen in der Bekämpfung der Magenwurmkrankheit der Schafe. [**Control of stomach worms in sheep.**]—*Mh. VetMed.* **7**, 266-270. **2823**

In 3 flocks comprising about 880 sheep treated with phenothiazine, a copper arsenical compound (composition not given), and a third proprietary anthelmintic, the worm burden was measured by egg-counts on faeces collected from the rectum. *Haemonchus contortus* was completely suppressed by normal doses of phenothiazine and the populations of *Trichostrongylus, Ostertagia* and *Cooperia* were reduced by two-thirds. The two other anthelmintics reduced the number of eggs produced to half in 8 days.—M. L. CLARKE.

SOMMERVILLE, R. I. (1954). **The histotropic phase of the nematode parasite, *Ostertagia circumcincta*.**—*Aust. J. agric. Res.* **5**, 130-140. **2824**

Larvae of *O. circumcinta* entered the gastric pits and glands and passed the third ecdysis three days after administration to sheep. Some of the larvae failed to grow after ecdysis and were found in the mucosa as long as three months later. Others migrated into the lumen of the abomasum immediately after ecdysis. Still others developed in the mucosa and migrated to the lumen either when adult or during the fourth stage.

Most larvae were found in the mucosa in the pyloric region and around the cardiac orifice. A few were found in the fundus where they formed large, flattened nodules. In these nodules the peptic, parietal and mucous chief cells were replaced by foveolar cells.

Larvae in the histotropic phase are apparently unlikely to be affected by anthelmintics. The epidemiological role of these larvae was not determined.—H. McL. Gordon.

Michel, J. F. (1953). **Fog fever syndrome in parasitic bronchitis.** [Correspondence.]—*Nature, Lond.* **171,** 940. **2825**

A syndrome resembling " fog-fever " was produced in 12 out of 24 young cattle artificially infested with larvae of *Dictyocaulus viviparus.* M. suggested that " fog-fever " may be an allergic condition.—Jas. G. O'Sullivan.

Sybesma, R. P. (1953). Over longworm. [**Control of *Dictyocaulus* infestation in calves.**]—*Tijdschr. Diergeneesk.* **78,** 483-489. [English, French and German summaries.] **2826**

S. stated that good results were obtained in calves with parasitic bronchitis caused by *Dictyocaulus* infestation, by s/c injections of an iron, copper, arsenic solution.

—C. A. van Dorssen.

Cavier, R. & Savel, J. (1952). La synthèse du glycogène, à partir de quelques glucides et de certains de leurs dérivés, par l'ascaris du porc, Ascaris lumbricoides Linné 1758. [**The synthesis of glycogen from some sugars and their derivatives, by *Ascaris lumbricoides*.**]—*C. R. Acad. Sci., Paris.* **234,** 2562-2564. **2827**

Sugars were not absorbed through the cuticle of *A. lumbricoides.* Glucose, fructose and sorbose were utilized. Maltose and saccharose were metabolized, but not lactose.

—Jas. G. O'Sullivan.

Gaafar, S. M. & Ackert, J. E. (1953). **Studies on mineral deficient diets as factors in resistance of fowls to parasitism.**—*Exp. Parasit.* **2,** 185-208. **2828**

Of 596 chicks (day-old at the start of the experiments) in 7 experiments, respective groups were kept on rations deficient in phosphorus, calcium and manganese, controls being fed an adequate diet. When 2–4 weeks old all were given about 200 eggs of *Ascaridia galli per os;* three weeks later all were slaughtered and the mature worms were counted and measured in each group. In the phosphorus and calcium deficient groups the worms were significantly fewer and shorter than in the control group, this difference being attributed to the Ca and P requirements of the worm. In the manganese deficient group there was no such constant trend. Typical deficiency symptoms occurred in each of the groups of chickens on the deficient diets.—F.E.W.

Ramanujachari, G. & Alwar, V. S. (1953). **On *Simondsia paradoxa* Cobbold, 1864, a parasitic helminth of pigs.**—*Indian vet. J.* **29,** 381-382. **2829**

A note on the occurrence of the nematode, *Simondsia paradoxa* in 7 out of 25 pigs, the authors stating that this was the first time the worm had been recorded outside Europe.

—R. N. Mohan.

Kieschke, S. (1951). Filaria papillosa in der vorderen Augenkammer. [**A species of *Setaria* in the anterior chamber of the eye in a horse.**]—*Tierärztl. Umsch.* **6,** 140. **2830**

A brief clinical note recording the presence of an immature adult of a species of *Setaria* in the eye of a mare in Germany. The parasite eventually disappeared and the eye returned to normal.—M. L. Clarke.

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Moulton, J. E. (1954). **Cutaneous papillomas on the udders of milk goats.**—*N. Amer. Vet.* **35,** 29-33. **2831**

An outbreak of cutaneous papillomas occurred in a herd of 200 Saanen goats: 50 lactating out of 150 white, but none out of 50 black, animals were affected. The lesions were limited to the skin of the udder and teats and interfered with milking. Biopsy samples from 5 animals showed papillomas from 3 and carcinomas from 2 histologically, while of 2 animals examined P.M., one showed 3 squamous cell carcinomas, without lymph nodal metastasis, and the other, one papilloma and 2 carcinomas, with one metastasis in the supramammary lymph node. A viral origin seemed indicated, but was not yet proven.—E. Cotchin.

Vendramini, R., Bruni, A. & Majori, L. (1951). Anche nella leucosi del cane puo' essere dimonstrata la presenza di un ultravirus. [**Demonstration of a virus in leucosis in the dog.**]—*Boll. Soc. ital. Biol. sper.* **27,** 1430-1432. **2832**

Blood taken from a dog with lymphadenosis and leucaemia was inoculated by various

routes into an unstated number of dogs and g. pigs. After 7–15 days there was a marked fall in the r.b.c. count of these animals, and changes in the w.b.c. picture, followed by death. Material from a dog which had been inoculated intracerebrally with the blood was injected i/p or intracerebrally into dogs, g. pigs, and rabbits, and produced a similar syndrome, even after it had been passed through a Berkefeld N filter, and after storage at room temperature in glycerine for 38 days, but not after 113 days in glycerine.—R.M.

WIESNER, E. (1953). Versuche zur experimentellen Leukoseerzeugung beim Kaninchen durch chronische Proteinvergiftung infolge Eiweissüberfütterung. **[Attempted production of leucosis in rabbits by feeding a ration rich in protein.]**—*Arch. exp. VetMed.* **7**, 508-513. **2833**

A report on an unsuccessful attempt to produce leucosis in 12 rabbits by feeding a ration containing large amounts of extracted soya bean meal.—E.G.

NUTRITIONAL AND METABOLIC DISORDERS

GRASHUIS, J. (1954). Antibiotica. Is opname in mengvoeders verantwoord? **[Is the addition of antibiotics to animal foodstuffs justified?]** — *Tijdschr. Diergeneesk.* **79**, 20-28. **2834**

G. discussed possible consequences of adding antibiotics to the food of animals, including difficulties when selecting animals for breeding, and dangers to the health of livestock so treated. —C. A. VAN DORSSEN.

KESLER, E. M. (1954). **Effect of terramycin fed to Holstein calves on growth, *in-vitro* cellulose digestion and B-vitamin synthesis.**—*J. Anim. Sci.* **13**, 10-19. [Author's summary modified.] **2835**

The addition of terramycin to a milk replacement diet for young calves stimulated growth significantly, as measured by body weight gains and increase in height at withers. Supplemented calves consumed more concentrates, and at an earlier age. There was little apparent effect on the concentrations of thiamine and riboflavin in the rumen fluid obtained from these calves at 6, 12 and 16 weeks of age. Levels of these vitamins were considerably higher than in the diet fed.

Terramycin in the milk replacement, or administered by capsule, lowered the *in vitro* breakdown of cellulose by micro-organisms of the rumen fluid, as measured in an artificial rumen.

JACOBS, R. L., ELAM, J. F., ANDERSON, G. W., GEE, L. L., FOWLER, J. & COUCH, J. R. (1953). **Further evidence as to the possible mechanism involved in the growth-promoting responses obtained from antibiotics.**—*J. Nutr.* **51**, 507 - 513. [Authors' summary modified.] **2836**

Data from two separate experiments showed that the oral administration of penicillin, erythromycin, aureomycin, bacitracin, chloramphenicol, furazolidone [N-(5-nitro-2-furfurylidene)-3-amino-2-oxazolidone] or *p*-chlorophenylarsonic acid failed to stimulate the growth of chicks reared in clean quarters. These supplements likewise failed to decrease the total number of clostridia present per g. of faeces.

This is further evidence that antibiotics stimulate growth by reducing the total number of clostridia in the intestinal tract of the chick and are ineffective in stimulating growth in a clean environment where the clostridia population is low.

FOY, H. & KONDI, A. (1954). **The haematinic action of penicillin in megaloblastic anaemia and its relationship to B_{12} metabolism and the intestinal flora.**—*Trans. R. Soc. trop. Med. Hyg.* **48**, 17-35. Discussion: pp. 36-41. [Authors' summary slightly modified.] **2837**

Sixteen human cases of typical megaloblastic anaemia, treated with oral or intramuscular penicillin, responded in the same way as do cases of similar anaemia to potent haematinics. The reticulocytes increased to the maximum expected for the blood count, the red cells and haemoglobin doubled themselves in from 14 to 21 days and the bone marrow reverted to the normal picture. Classified according to their response to treatment there were three well defined groups:—(a) Those that responded to penicillin or oral B_{12}; (b) Those that did not respond to penicillin nor to oral B_{12}; but did so to intramuscular B_{12}: these had a histamine-fast achlorhydria and signs of gastric atrophy; (c) Those that responded only to folic acid.

It appears that the response to penicillin is in some way associated with the production, utilization and absorption of B_{12} in the intestinal tract. It is suggested that changes in the synthesis, utilization and absorption of B_{12} in the intestinal tract are connected with:—(a) changes in the ecological equilibrium of the gut flora

that alter the balance between those bacteria that synthesize B_{12} and those which are competing for it; (b) changes in the metabolism of the bacteria brought about by penicillin resulting in alterations in the availability of essential metabolites to other bacteria or to the host; (c) destruction of those bacteria containing B_{12} thus making this substance available for the host.

It is considered that the growth acceleration which follows the administration of antibiotics to animals; the prevention of liver damage by means of antibiotics in animals fed on necrogenic diets; the prevention and cure by antibiotics of the megaloblastic anaemias of self-filling intestinal loops; and the development of megaloblastic anaemias in infestations with *Diphyllobothrium* are all related and are associated with changes in the flora and fauna of the alimentary tract that are connected with the synthesis, absorption and utilization of B_{12}.

It is suggested that the high incidence of megaloblastic anaemias in many backward countries may be connected with a high carbohydrate low protein diet that produces an intestinal environment inimical to the synthesis and utilization of B_{12}.

WESTCOTT, R. W., MOORE, G. R., CONNER, G. H. & RILEY, W. F. (1953). **Synthetic media powder to enhance rumen microfloral growth and activity : preliminary report.**—*Vet. Med.* **48,** 349-350. 2838

A synthetic rumen medium, ' profloran ' [formula not given] was administered, in place of actual transfusion of fresh rumen content, to 139 cows with various types of rumen dysfunction, generally with success.—C. A. E. BRIGGS.

KARUNAIRATNAM, M. C. & LEVVY, G. A. (1951). **A glucuronide-decomposing enzyme from rumen micro-organisms. I. Preparation and assay.**—*Biochem. J.* **49,** 210-215. 2839

A cell-free extract of a fraction of the rumen micro-organisms contained an enzyme which liberated phenolphthalein from its glucuronide at a pH optimum of 6·1.—R. MARSHALL.

HENNAUX, L., ANTOINE, A. & BOUDART, R. (1953). Le *Coix lacryma-jobi* dans le rationnement du porc. [*Coix lacryma-jobi* **for feeding pigs.**] — *Bull. agric. Congo. belge.* **44,** 1335-1342. [In French. Flemish summary.] 2840

The addition of 30% *Coix lacryma-jobi* (" Job's Tears ") to the diet of pigs produced no significant change in the rate of growth. The meat/fat ratio of carcasses was reduced from 4·55 in a control group to 4·09.—D. POYNTER.

BARKER, J. P., ADOLPH, E. F. & KELLER, A. D. (1953). **Thirst tests in dogs and modifications of thirst with experimental lesions of the neurohypophysis.** — *Amer. J. Physiol.* **173,** 233-245. [Authors' summary modified.] 2841

Drinking was induced in dogs either by dehydrating the body to the extent of 5% of the weight when they panted in a hot atmosphere, or by injecting 10 micromoles of sodium chloride/kg. of weight. In standard tests the amounts of water then drunk were modified by distension of the stomach with water (inhibition) or by injection of pitressin (enhancement). The flow of urine and the chloride concentration were measured in order to furnish further indexes of physiological states.

When dogs in which experimental diabetes insipidus was produced, and others in which the pituitary stalk was sectioned without apparent diabetes insipidus, were subjected to the same tests, they all drank excessive amounts of water in initial recovery from water deficit. After salt injection, only during subsequent hours was their drinking excessive. Their drinking was partially inhibited by gastric distension but was not further enhanced by administration of pitressin. Thus in dogs with lesions of the pituitary stalk an abnormality of drinking was identified that was independent of the processes of urinary excretion. Whether the role of the pituitary region be wholly nervous or partly endocrine, lesions of this region produced specific quantitative effects in drinking. Some other features of drinking were uninfluenced by these lesions.

MORRIS, M. L. (1953). **Nutritive requirements of the cat : a preliminary report.**—*Vet. Med.* **48,** 451-456. 2842

M. discussed literature on cat-feeding. He described briefly the establishment of a small cat-colony and gave the calorie intakes, weights and diet analysis for a preliminary period.

—P. H. HERBERT.

COFFIN, D. L. & HOLZWORTH, J. (1954). **" Yellow fat " in two laboratory cats: acid-fast pigmentation associated with a fish-base ration.**—*Cornell Vet.* **44,** 63-71. [Authors' summary modified.] 2843

" Yellow fat " was observed P.M. in two cats that died after being fed exclusively, for approx. 5 months, a fish-base commercial cat food. Histologically an acid-fast pigment was observed in the fat, similar to that seen in animals reared on experimental diets high in unsaturated fatty acids and deficient in vitamin E, and in mink and pigs fed rations high in fish.

STROMINGER, J. L., BROBECK, J. R. & CORT, R. L. (1953). **Regulation of food intake in normal rats and in rats with hypothalamic hyperphagia.**—*Yale J. Biol. Med.* **26**, 55-74. 2844

Following the dilution of a stock diet with fat, carbohydrate, protein, water or cellulose, the food consumption of rats was measured for short (one day) and long (2 weeks) periods. Caloric intake did not appear to be the controlling factor. Rats with bilateral hypothalamic lesions showed abnormal patterns of regulation irrespective of the development of hyperphagia.—P. H. HERBERT.

BIONDO, G. (1953). Ricerche sperimentali sulla permanenza dell'alimento nell'apparato digerente in *Capra hircus* L. I. Indagini eseguite su caprini tenuiti a regime alimentare misto. **[Duration of digestion in the goat.]**—*Nuova Vet.* **29**, 97-101. 2845

In feeding tests with 10 goats of various ages, using oats stained with 0·3% fuchsine, it was found that the food remained longer in the digestive tract of older goats (four and a half to eight years old) than in kids up to seven months old.—I. MARTINI.

SCARISBRICK, R. (1954). **Acid indigestion in a sheep fed on mangolds.**—*Vet. Rec.* **66**, 131-132. 2846

A Suffolk wether of 150 lb. was accidentally fed with 15 lb. of mangolds instead of the 12 lb. a day it had received for a fortnight. It developed lameness and ruminal stagnation. For four days it did not drink but had a craving for chaffed hay.

The pH of the rumen on the first day was 4·7 and the lactic acid concentration was abnormally high for 3 days. It is suggested that the rapid production of acid in the rumen interferes with normal neutralizing mechanisms.

—A. SEAMAN.

WORDEN, A. N., BUNYAN, J. & PICKUP, J. (1954). **A fatal hypocalcaemia-like syndrome in dairy cows following the excess consumption of fodder-beet.**—*Vet. Rec.* **66**, 133-134. 2847

The sudden introduction of fodder-beet into the ration of a herd of 50 Guernsey cows was followed by hypocalcaemia within 24 hours. The animals were treated with calcium borogluconate, but 6 died and the milk flow did not begin to return in the remaining 44 until the third day. Toxicological examinations of tops and roots were negative.—A. SEAMAN.

MCDONALD, M. W. & MCCLYMONT, G. L. (1954). **Studies on the nutrition of poultry. IV. Nutritional value of condensed whale solubles in chicken rations.** — *Aust. vet. J.* **30**, 57-60. 2848

Condensed whale solubles (crude protein 41·2%) produced in Western Australia was used to replace a portion or all of the meat meal in rations based on wheat products. The rations were fed to chickens from hatching to 6 weeks of age and the growth rates and mortality compared.

The net value of the protein was at least as good as that in meat meal. Condensed whale solubles was deficient in some growth factor(s) presumably of the vitamin B complex. The product should prove useful as a protein supplement for chicken rearing as protein is continually in short supply.—L. HART.

I & II. NAKAJIMA, T., SUGITA, T., WATANABE, T. & ARAI, K. (1952). **[On the influence of the feed upon bones. IV. On the influence of rye upon bones.] V. [On the influence of rye upon the development of bones with respect to the age in rats.]**—*Jap. J. vet. Sci.* **14**, 41-48 & 49-54. [English summaries.] 2849

I. In rats affected with osteoporosis resulting from the feeding of a rye diet, there was atrophy of the columnar cells in the proliferative cartilage, probably due to protein deficiency.

II. Groups of rats, 35 days old were more severely affected with osteoporosis than similar groups, 47 and 60 days old, when fed exclusively on rye for 80 days.—KOGI SAITO.

GRATER, G. S., OSBORNE, A. D. & WHITE, J. B. (1954). **Sudden death of cattle attributed to peracute hypomagnesaemia.** — *Vet. Rec.* **66**, 161-162. 2850

Three cows which had calved less than two months previously, died suddenly soon after the herd was moved from a farm on heavy clay to one on chalk. P.M. examination revealed enlargement, congestion and rupture of the spleen and haemorrhage in the viscera, diaphragm and thorax. Hypomagnesaemia was diagnosed when two out of six cows in the same herd were found to have low blood levels of magnesium.—A. SEAMAN.

BERGMAN, E. N. & SELLERS, A. F. (1954). **Studies on intravenous administration of calcium, potassium, and magnesium to dairy calves. II. Some cardiac and respiratory effects.** — *Amer. J. vet. Res.* **15**, 25-35. [Authors' summary modified.] 2851

The authors described methods of simultaneously recording right intraventricular pres-

sure, electrocardiogram, phonocardiogram, and pneumogram in the dairy calf during a constant and continuous i/v injection.

Calcium injection produced an initial bradycardia but terminal tachycardia and fibrillation followed. Various grades of atrioventricular block and isolated or small groups of extrasystoles were observed. A marked rise in right ventricular systolic pressure was seen.

Potassium injection seemed to produce a progressive, uniform, and widespread intraventricular block and also a progressive decline in cardiac automaticity until cardiac arrest occurred. P waves disappeared and intraventricular block was established at a plasma potassium level of approx. 8 mEq./litre.

Magnesium injection produced respiratory embarrassment and one respiratory failure. Atrioventricular and intraventricular conduction seemed to be progressively and uniformly depressed.

Some antagonistic and additive effects of calcium and magnesium were observed and discussed. Calcium appeared to antagonize the toxic effects of magnesium, but the reciprocal antagonism did not seem to occur.

The effects of oxalate administration seemed opposite to those of calcium administration.

LEOSCHKE, W. L. & ELVEHJEM, C. A. (1954). **Prevention of urinary calculi formation in mink by alteration of urinary pH.** — *Proc. Soc. exp. Biol., N.Y.* **85**, 42-44. [Authors' summary modified.] **2852**

The formation of magnesium ammonium phosphate ($MgNH_4PO_4 \cdot 6H_2O$) urinary calculi in mink can be prevented by the addition to the diet of 1 g. of ammonium chloride (NH_4Cl) per mink per day. A level of 0·5 g. NH_4Cl per mink per day was found to be ineffective.

GARCÍA, E. (1952). Hallazgos histopatológicos en la anemia carencial del ganado vacuno gallego (" sequeira "). **[Histopathology of nutritional anaemia in cattle.]**—*An. Fac. Vet. Madrid.* **4**, 264-270. [English, French and German summaries.] **2853**

An account of P.M. findings in cattle in the province of Gallicia, Spain, affected with " sequeira," a deficiency anaemia in which there is generalized haemosiderosis of the liver, kidneys, spleen, and lymph nodes. The author considered that the condition resulted from a disturbance of the iron metabolism.—A.S.

STEVENS, A. R., JR., WHITE, P. L., HEGSTED, D. M. & FINCH, C. A. (1953). **Iron excretion in the mouse.** — *J. biol. Chem.* **203**, 161-165. **2854**

Normal and iron-injected mice showed similar percentage daily losses of iron, when carcass content of initial tracer dose of Fe^{55} was measured, suggesting increased excretion by the high-iron animals, since a similar rate of radio-iron loss in the iron-injected mice represents the excretion of a quantity of iron several times that lost from the normal animal.—P. H. HERBERT.

WALSH, T. & O'MOORE, L. B. (1953). **Excess of molybdenum in herbage as a possible contributory factor in equine osteodystrophia.** [Correspondence.] — *Nature, Lond.* **171**, 1166. **2855**

The authors reported rickets occurring in foals run with their dams on pasture with a molybdenum content of 5–25 p.p.m. and suggested that the foals on such pastures would receive excess molybdenum which might interfere with the metabolism of both copper and phosphorus.—JOHN SEAMER.

CHANDA, R., CLAPHAM, H. M. & OWEN, E. C. (1954). **Dietary carotene and the degree of esterification of vitamin A in the milk and blood of cows.**—*Biochem. J.* **56**, 453-458. [Authors' summary modified.] **2856**

Lactating cows were fed, in alternate periods, carotene-free diets and diets containing carotene; the intakes of carotene in the successive carotene periods increased as the experiment progressed.

In confirmation of the authors' previous results [*V.B.* **22**, 3183] carotene deprivation caused the amount of vitamin-A alcohol in the milk to increase, though the conc. of vitamin-A alcohol in the blood serum was unaffected.

Carotene deprivation caused vitamin-A ester to disappear completely from the blood serum; it reappeared when carotene was again fed.

The authors concluded from these results and from earlier results with thyroxine-treated animals that increases in vitamin-A alcohol in the milk of cows indicate a transfer of reserves of vitamin-A from the cow's liver to the milk.

SCHOFIELD, F. W. (1953). **The prevention and treatment of white muscle disease (muscular dystrophy).**—*Canad. J. comp. Med.* **17**, 422-424. **2857**

Vitamin E and phosphorus are probable aetiological factors. Predisposing factors are important. Acute muscular dystrophy is frequently mistaken for acute pneumonia. Lambs should be given 20 ml. dilute phosphoric acid

in milk daily for a week and 250–500 mg. α-tocopherol for 3 days, with half this dosage for the next 3 days. In calves the dosage is 30 ml. and 250–1000 mg., respectively.—R. GWATKIN.

BALDISSERA NORDIO, C. (1951). Nuove ricerche sui rapporti tra sulfamidici e sintesi batterica della vitamina B_1 nel rumine di *Capra hircus*. **[Relationships between the sulphonamides and the bacterial synthesis of vitamin B_1 in the rumen of goats.]**—*Boll. Soc. ital. Biol. sper.* **27**, 954-956. **2858**

Using two goats the author determined the thiamine content of rumen fluid before and after the oral administration of 4 different sulphonamides. The concentration of thiamine increased nearly 10 times after 3 daily doses of 8 g. sulphathiazole.—R.M.

HILL, H. (1953). Zur Methodik der Vitamin B_{12}-Bestimmung mit Euglena gracilis var. bacillaris. **[Determination of vitamin B_{12} using the alga *Euglena gracilis*.]**—*Dtsch. tierärztl. Wschr.* **60**, 310-312. **2859**

An account of the determination of vitamin B_{12}, employing pigments extracted by acetone from *E. gracilis* and an electric photometer, comparison being made with a standard solution of crystalline vitamin B_{12}. The alga requires a constant temperature and constant light for growth.—H. BEHRENS.

KRATZER, F. H. (1953). **The relation of vitamin B_{12} to the methylation of homocystine in poults.**—*J. biol. Chem.* **203**, 367-371. **2860**

Poults from vitamin B_{12}-deficient turkey hens were fed a basic ration containing dimethylamino-ethanol. With added homocystine both vitamin B_{12} and betaine gave increased growth, but not in methionine supplemented controls. High mortality occurred in the homocystine/betaine groups.—P. H. HERBERT.

COLLINS, R. A., SCHREIBER, M. & ELVEHJEM, C. A. (1953). **The influence of relative humidity upon vitamin deficiencies in rats.**—*J. Nutr.* **49**, 589-597. **2861**

Rats on diets deficient in vitamin A, riboflavin, pantothenic acid or pyridoxine, and on complete diets, were maintained at varying humidities. Below 10% relative humidity all developed dermatitis of the paws: above 50% R.H. all were free, and at 90% R.H. a red pigment appeared on the fur of the head.

—JOHN SEAMER.

NESS, G. V. (1953). **Weather influence in blue comb in chickens.** — *Science.* **118**, 601-602. **2862**

N. presented evidence that "blue comb" disease, a pathological complex of which the exact aetiology is not yet established, seems to be strongly related to hot weather stress.—J.D.

PENNINGTON, R. J. (1954). **The metabolism of short-chain fatty acids in the sheep. II. Further studies with rumen epithelium.**—*Biochem. J.* **56**, 410-416. [Author's summary slightly modified.] **2863**

The rate of metabolism of propionic acid by sheep-rumen epithelium increased with the proportion of carbon dioxide in the atmosphere up to about 20% CO_2/80% O_2. This level of CO_2 had no influence upon the rate of metabolism of acetic or butyric acid.

Malonate inhibited the uptake of each acid without showing any differential action on the formation of ketone bodies from butyrate. Malonate inhibition of propionate uptake was only partially reversed by fumarate. Succinate was produced when propionate was metabolized in the presence of malonate.

Ammonium ion inhibited the metabolism of propionate and possibly of acetate, but not of butyrate. It had no appreciable effect upon ketogenesis.

Propionate depressed the oxygen uptake of rumen epithelial tissue in the absence of CO_2, but stimulated respiration in the presence of the latter. Butyric acid and glucose increased the rate of oxygen uptake.

The uptake of acetic, propionic and butyric acids, and production of ketone bodies by ox-rumen epithelium paralleled that of the corresponding tissue of the sheep.

LEWIS, D. (1954). **The reduction of sulphate in the rumen of the sheep.**—*Biochem. J.* **56**, 391-399. [Author's summary copied *verbatim*.] **2864**

Sulphate is reduced to sulphide in the rumen of the sheep and also *in vitro* using a washed suspension of rumen contents under various conditions. It was shown *in vitro* using hydrogen gas as hydrogen donor, that the optimum *p*H of the reduction is around 6·5. Sulphite and thiosulphate are also reduced to sulphide. In addition to hydrogen gas, the following hydrogen donors were also effective: glucose, formate, fructose, lactate, pyruvate, succinate, ethanol, citrate and malate.

ATKINSON, M., PATON, A. & SHERLOCK, S. (1954). **Control of ascites in hepatic cirrhosis.**—*Lancet.* **266**, 128-130. [Authors' summary copied *verbatim*.] **2865**

Patients with portal cirrhosis and ascites

can be maintained indefinitely, without abdominal paracenteses, by rigid dietary sodium restriction with, if necessary, mercurial diuretics and ammonium chloride. Protein loss into the ascites ceases, the serum-albumin level rises, and the state of nutrition improves.

NIEPAGE, H. (1953). Hämatologische Befunde bei puerperalem Leberkoma des Rindes. **[Examination of the blood in puerperal toxaemia in cattle.]** — *Mh. VetMed.* **8,** 90-92. 2866

In a case of puerperal toxaemia in a cow there was acute anaemia with erythroblastosis. The bone marrow revealed severe fatty degeneration, decreased production of r.b.c. and proliferation of the reticular tissue.—H. BEHRENS.

BODA, J. M. & COLE, H. H. (1954). **The influence of dietary calcium and phosphorus on the incidence of milk fever in dairy cattle.** —*J. Dairy Sci.* **37,** 360-372. [Abst. from authors' summary.] 2867

The incidence of milk fever was determined in 69 aged Jersey cows divided into four groups and fed diets containing various calcium-phosphorus ratios for varying periods before parturition.

The results indicated that a low-Ca high-P diet (Ca : P ratio of 1 : 3·3) fed during the last month of the dry period effectively prevents milk fever. There appeared to be a direct correlation between the Ca : P ratio of the *prepartum* diet and the incidence of milk fever. Clinical symptoms of milk fever developed in 30% of the cows receiving a dietary Ca : P ratio of 6 : 1, and 15% of those fed on a dietary Ca : P ratio of 1 : 1, and in none of those fed a dietary Ca : P ratio of 1 : 3·3.

The *post-partum* serum Ca levels of the cows receiving the low-Ca high-P diet tended to be higher than those receiving the high-Ca diets, although the results were not statistically significant.

The various rations fed appeared to have no appreciable influence on the subsequent lactation.

The authors suggested that the low-Ca high-P diet exerts its preventive action by inducing a compensatory hypertrophy of the parathyroid glands, thus tending to avert the drop of serum Ca accompanying parturition and early lactation.

JOHNSON, R. B. (1954). **The treatment of ketosis with glycerol and propylene glycol.**—*Cornell Vet.* **44,** 6-20. [Author's summary copied *verbatim.*] 2868

Glycerol and propylene glycol, given orally, are effective in the treatment of ketosis. It is suggested that research directed toward the control of rumen fermentation not only should bring about the elimination of the problem of ketosis, but may offer a means of increasing milk production generally.

SPROULL, D. H. (1954). **The glycogenolytic action of sodium salicylate.**—*Brit. J. Pharmacol.* **9,** 121-124. [Author's summary modified.] 2869

The liver glycogen and blood sugar concentrations of young Swiss albino mice were determined 1, 2, and 4 hours after the administration of 10 mg. sodium salicylate.

The liver glycogen concentrations of the salicylate-treated animals were significantly lower than those of saline-treated controls at 1 or 2 hr. after injection, irrespective of sex, or whether fed or fasted immediately before the experiment.

Though hyperglycaemia occurred in the salicylate-treated females, there was no significant change in blood sugar concentration in the males.

S. briefly discussed these findings and concluded that the hyperglycaemia should be regarded as a secondary effect, and that salicylate probably has other major actions on carbohydrate metabolism.

See also absts. **2828** (mineral deficiencies in parasitism of fowls); **2937** (effect of animal protein in the ration on the fertility of bulls).

DISEASES, GENERAL

BIANCHI, E. (1952). Particolari aspetti della patologia suina in Emilia. **[Diseases of pigs in the Emilia region of Italy.]**—*Clin. Vet., Milano.* **75,** 353-363. 2870

A general account of the diseases of pigs in the Emilia region of Italy.—I. MARTINI.

SHOPE, R. E., SUSSMAN, O. & HENDERSHOTT, R. A. (1953). **Administrative considerations of garbage feeding with reference to vesicular exanthema and trichinosis.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* 1952. pp. 218-223. 2871

Because the feeding of raw swill is the main method of spread of trichinosis and vesicular exanthema in pigs, and since raw swill was responsible for two outbreaks of F. & M. disease in the U.S.A., the authors made recommendations for coordinated state and federal action to control the movement of raw swill between states, and the movement and slaughter of animals fed raw swill.

—JAS. G. O'SULLIVAN.

I. STEEL, J. D. (1952). **Observations on some diseases of the urinary tract in dogs.**—*Aust. vet. J.* **18,** 76-80. 2872

II. BOON, R. D. (1952). **Some observations on cystitis, nephritis and leptospirosis in small animals.**—*Ibid.* 81-84. 2873

I. A general discussion on leptospira infection, nephritis and cystitis in dogs, particularly the distribution, incidence, clin. signs, diagnosis, therapy and prophylaxis of the first condition. Current theories of the aetiology of nephritis were mentioned and a comparison was made of nephritis in dogs with Bright's disease in man. Chronic interstitial nephritis is common in dogs in the Sydney area, where in spite of serological investigations no evidence of *L. canicola* infection had been revealed. The therapy of cystitis was discussed with particular reference to antibiotics, including penicillin, streptomycin, aureomycin and chloramphenicol.

II. B. discussed cystitis, nephritis and leptospirosis from the viewpoint of a small-animal practitioner. In addition he described the first confirmed outbreak in the Sydney area of infection in dogs caused by *L. icterohaemorrhagiae,* the diagnosis being made by serological means and confirmed by animal inoculation.

—J. H. WHITTEM.

MASIA, R. (1953). Les maladies microbiennes du dromadaire et leur importance en Afrique du Nord. **[General, bacterial, fungous and virus diseases of the camel in North Africa.]** —*Thesis, Paris* (*Alfort*). pp. 62. 2874

After a brief note on the social importance and general characteristics of the camel there follow brief summaries of the essential features of diseases of the camel caused by viruses (camel pox, F. & M. disease, rinderpest, rabies); by bacteria (including blackleg, tetanus, *Pasteurella, Salmonella,* and *Brucella* infections, tularaemia, and TB.); and by streptothrix organisms and by *Sporotrichum.* Few of the micro-organisms are however named. There is a chapter summarizing legislation bearing on camel diseases and in conclusion reference is made to a few handbooks on diseases of the camel.—G. C. AINSWORTH.

TANNER, A. (1948). Kanatautien frekvenssistä Suomessa vuosina 1936-1947 valtion eläinlääkintölaboratoriossa suoritettujen tutkimusten perusteela sekä eräistä etiologisista ja patologis-anatoomisista havainnoista. **[Poultry disease in Finland, according to diagnostic work carried out between 1936-47.]**—*Suom. Eläinlääkäril.* **54,** 271-287. [In Finnish.] 2875

An account of the comparative frequency of various diseases in fowls in Finland, based on diagnostic work on specimens sent in to the State Veterinary Laboratory, Helsinki during 1936-47. Of a total of 5,087 dead poultry examined, 763 were diagnosed as TB., 357 as pullorum disease, 887 as coccidiosis, 168 had neoplasms—mostly peritoneal carcinoma, 814 had fowl paralysis, 225 had died from visceral gout and 447 from salpingo-peritonitis. Pullorum disease occurred only during the earlier years of the period. Coccidiosis occurs mainly during the summer months. T. discussed *Aspergillus* infection as a possible cause of inflammation of the air sacs.—H. WESTERMARCK.

ANON. (1954). **Report of the Committee on Transmissible Diseases of Poultry.** — *Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 273-285. 2876

The committee on transmissible disease of poultry of the U.S. Livestock Sanitary Association discussed the use of Newcastle disease vaccine in aerosol form, the use of vaccines against infectious bronchitis, progress in testing flocks for *S. pullorum* infection, and the control of *S. gallinarum* and *S. typhi-murium* infections. They gave 104 references to recent work on respiratory diseases (chronic respiratory disease, psittacosis, bluecomb) and " haemorrhagic disease " [*V.B.* **24,** 569]. They also discussed regulations for importation of poultry into the U.S.A., and poultry disease problems in Canada.—R.M.

TORYU, Y. & CHIBA, K. (1949). **[Glycogenolysis in the nerve cells of the nervous system affected with paralysis.]**—*Jap. J. vet. Sci.* **11,** 1-11. [English summary.] 2877

In earlier work (1937-38) Toryu had reported that the glycogen in the nerve cells of the horse is contained in the Nissl's bodies. The authors observed glycogenolysis in the motor nerve cells in the lumbar region of the spinal cord, and in the spinal ganglion cells of the lumbar and sacral regions of fowls with vitamin B deficiency; and in the spinal motor nerve cells of the lumbar and sacral regions, and sometimes also in some of the spinal ganglion cells of these

regions in horses affected with ' lumbar paralysis ' caused by microfilariae of *Setaria* worms. In these cases, disintegration of the Nissl's bodies was also accompanied by glycogenolysis. The cells in the sympathetic ganglia were normal in both the fowls and the horses.

—Kogi Saito.

Ungar, G. (1952). **Inflammation and its control. A biochemical approach.**—*Lancet.* **263,** 742-746. **2878**

The hypothesis is formulated of a fibrinolytic mechanism by which inflammation may be brought about. Serum profibrinolysin is activated by fibrinokinase of bacterial, cellular or serum origin to the protease fibrinolysin which acts on various proteins to liberate histamine and other substances. Blocking of the fibrinolytic system at different points by heparin, serum antifibrinolysin, antiphlogistic drugs and antihistamine drugs can prevent the development of inflammation. Normally this takes place spontaneously through serum anti-fibrinolysin after the initiation of the inflammatory response. Inflammation may be under endocrine control through the fibrinolytic system, as A.C.T.H. and cortisone increase antifibrinolytic activity while prolonged administration of 11-desoxysteroids and pituitary thyroid stimulating and growth hormones decrease it. The balance between these two opposing mechanisms may be the main factor determining whether inflammation is self-limited or becomes chronic.

—A. Ackroyd.

I. Hutchins, D. R. (1952). **Equine colic with particular reference to impaction of the ileo-caecal valve.** — *Aust. vet. J.* **28,** 236-241. **2879**

II. Millar, R. (1952). **Equine colic.**—*Ibid.* 241-245. **2880**

I. Details of 108 consecutive cases of gastro-intestinal colic are presented. These cases represent 16·8% of the total horse cases seen over a certain period. Considerable attention was given to the possible causes of pain and to the mechanisms producing death which are likely to be important in equine colic, and to explain why certain forms of treatment were used. Eighty seven *per cent.* of the cases were due to gastric dilatation, spasmodic colic and colonic and caecal impaction. Of these only 4·6% died. Thirteen *per cent.* of all the cases were due to ileo-caecal valve impaction, flatulent colic, torsion, intussusception, and unclassified colic and of these, 57% died.

Clinical outlines of the forms of colic were given with special attention to ileo-caecal valve impaction. The first stage in the syndrome is that of subacute pain with increased intestinal motility and negative rectal findings. After 8–12 hours dull continuous pain with symptoms of shock appear and intestinal motility ceases. Passage of the stomach tube is followed by the aspiration of available quantities of sanguineous fluid. Distended coils of intestines suspended by a taut mesentery are palpable on rectal examination. At autopsy large quantities (25–30 gal.) of sanguineous fluid are found in the small intestine.

II. This is a general discussion.

—D. C. Blood.

Schebitz, H. (1954). Zur Ätiologie der periodischen Augenentzündung. [**Aetiology of periodic ophthalmia in horses.**]—*Berl. Münch. tierärztl. Wschr.* **67,** 29-31. [English summary.] **2881**

A positive serological reaction to different species of pathogenic leptospira was found more often in the serum of horses with equine periodic ophthalmia (17 out of 25 cases) than in that of normal horses (71 of 575 cases). These findings support similar work reported in the literature which indicated that leptospira may be related to the disease. Leptospiral transmission experiments with 7 horses failed to produce typical ocular lesions.—W. G. Siller.

Maricz, M. (1953). L'hématurie essentielle au Congo belge. [**Bovine chronic haematuria in the Belgian Congo. Treatment with formol.**]—*Bull. Inform. INEAC.* **2,** 5-20. [Publ. in *Bull. agric. Congo belge.* **44,** No. 1.] **2882**

A general account of bovine chronic haematuria as seen in the Belgian Congo. While most cases are chronic, acute cases do occur and M. states that following a single irrigation of the bladder with dilute formol, followed by a rinsing with dilute trypaflavin, 59% of the cases recovered.—J.D.

Köhler, H. & Rösener, P. (1953). Veränderungen vegetativer Ganglien bei der Fremdkörper-Peritonitis des Rindes. [**Changes in the sympathetic ganglia in foreign-body peritonitis of cattle.**] — *Dtsch. tierärztl. Wschr.* **60,** 93-96. **2883**

Cattle with traumatic reticulitis showed histological abnormalities in the ganglion cells of the stellate, coeliac and anterior mesenteric ganglia. The changes were less marked in animals that had been operated on, and in tuberculous cattle. Slight changes were present in normal animals.—E. G. White.

HAYMAN, R. H. (1953). **Studies in fleece-rot of sheep.**—*Aust. J. agric. Res.* **4**, 430-468. **2884**

Fleece rot, a condition associated with dermatitis in certain circumstances, was studied at the F. D. McMaster Field Station near Sydney in a flock of mainly Merino sheep from April 1946 to July 1947. It occurred when rain fell with sufficient intensity and frequency to keep sheep wet to the skin for at least a week. Young sheep are more susceptible than old. In one group of 106 Merino sheep observed in each of 4 consecutive years it occurred every year in 45, and once or not at all in 27. It was induced in 4 out of 5 sheep known to be susceptible, and failed to develop in 5 known to be resistant. Differences in susceptibility were found between families of Merino sheep.—M. H. HARDY.

MATTHIAS, D. (1953). Zur Pathogenese des sogenannten Herztodes der Schweine. **[Pathogenesis of fatal syncope in pigs.]**—*Arch. exp. VetMed.* **7**, 130-142. **2885**

The clinical and P.M. picture of fatal syncope of pigs can be reproduced experimentally by parenteral administration of thyroxine followed by s/c injections of adrenaline. Death appears to be due to ventricular fibrillation. The existence of thyrotoxicosis in fatal syncope of young pigs has long been established and when it coincides with an increased sensitivity to adrenaline, cardiac apoplexy results during psychical excitement.—W. G. SILLER.

ROBERTS, S. R. (1954). **The nature of corneal pigmentation in the dog.** — *J. Amer. vet. med. Ass.* **124**, 208-211. [Abst. from author's summary.] **2886**

Studies on 21 diseased eyes of dogs with pigmentation of the cornea revealed that the pigment is melanin. Pigmentation of the superficial third of the cornea originates in the germinal epithelium and, to a limited extent, from the limbus. Pigmentation of the deep corneal stroma, in the absence of superficial pigmentation, originates in the uveal tract. No support was found for the theory that corneal pigmentation is caused by fungi.

LONG, D. A. (1954). **The pathogenesis of rheumatic fever.** — *Lancet.* **266**, 529-537. **2887**

Haemolytic streptococci cause rheumatic fever by inducing hypersensitivity of the tuberculin type to streptococcal allergens. Dietary and hormonal factors influence susceptibility to the disease. Susceptibility to rheumatic fever and sensitivity to bacterial allergens amount to the same thing. L. discussed the limitations of experimental pathology in elucidating human disease. He listed 82 references.—W. R. BETT.

POISONS AND POISONING

ARRINGTON, L. R. & DAVIS, G. K. (1953). **Molybdenum toxicity in the rabbit.**—*J. Nutr.* **51**, 295-304. [Abst from authors' summary.] **2888**

Rabbits were fed molybdenum added as sodium molybdate to a commercial ration. When 0·1% or more was fed, gross toxic symptoms were produced, characterized by anorexia, loss of weight, alopecia and a dry scaly condition of the skin, anaemia and death within 4–8 weeks. In some young rabbits a deformity of the fore legs developed. The addition of copper to the ration prevented the development of toxicity; rabbits that had developed severe toxic symptoms rapidly recovered following administration of copper.

ELY, R. E., MOORE, L. A., CARTER, R. H., MANN, H. D. & POOS, F. W. (1952). **The effect of dosage level and various methods of administration on the concentration of DDT in milk.** — *J. Dairy Sci.* **35**, 266-271. **2889**

When cows were fed alfalfa hay which had been sprayed with D.D.T. in the field, greater concentrations of D.D.T. were demonstrable in the milk than when the same amount of an oily soln. of crystalline D.D.T. was fed. —R. MARSHALL.

BARNES, J. M. & DENZ, F. A. (1953). **Experimental demyelination with organo-phosphorus compounds.**—*J. Path. Bact.* **65**, 597-605. [Authors' summary modified.] **2890**

Paralysis was produced in hens by the oral or parenteral administration of three organophosphorus compounds -- bis-monoisopropylamino fluorophosphine oxide (mipafox), di-isopropyl fluorophosphonate (D.F.P.) and triorthocresyl phosphate (T.O.C.P.). Stained sections showed demyelination in the peripheral nerves and particularly in the spinal cord. When given by mouth to rats and rabbits, mipafox produced general weakness but no permanent paralysis; some demyelination developed in the peripheral nerves and in the fasciculus

gracilis. The authors briefly discussed the findings and concluded that the ability to produce demyelination is not solely or directly related to the activity of these compounds as inhibitors of cholinesterase.

MILLER, R. C., BORTREE, A. L. & SHOOK, J. C. (1952). **Bovine hyperkeratosis (X disease).** —*Progr. Rep. Pa. agric. Exp. Sta.* No. 69. pp. 8. 2891

The authors reported outbreaks of hyperkeratosis in cattle on two farms. One followed the heavy use of a cresylic disinfectant. The second followed the use of hay which was thought to be contaminated with a wood preservative. In both outbreaks the condition was consistently reproduced in experimental calves by application of the disinfectant and by feeding contaminated hay. Other calves which were painted or dosed orally with a wood preservative also developed the condition. Affected calves had a high plasma ascorbic acid level. —E. A. GIBSON.

DODD, D. C. & HALL, R. A. (1953). **The experimental production of hyperkeratosis in young calves by the use of a pentachlorinated naphthalene compound.**—*N.Z. vet. J.* **1,** 104-109. [Authors' summary modified.] 2892

This is one of 3 articles on the subject [see also *V.B.* **24,** 2047 & 2048].

The authors produced hyperkeratosis in young calves by oral dosage and also by external application of a wood preserving wax composed essentially of pentachlorinated naphthalene. Intestinal and renal lesions were the most constant findings at P.M. examination. The tubular dilatation in the kidneys was shown to be caused by a lower nephron obstruction. Skin lesions were produced. There was no evidence of severe liver damage. Blood and liver levels of vitamin A were very low. The authors suggested that the vitamin A may be involved in a detoxifying process. They made suggestions for future investigations of the disease.

GRAF, H. (1952). Über die Aufnahme des Scharfen Hahnenfuss durch weidende Rinder. I. Beitrag zur Kenntnis des Typus *Ranunculus acer* L. **[Consumption of crowfoot by grazing cattle. I. Recognition of *Ranunculus acer*.]** — *Schweiz. Arch. Tierheilk.* **94,** 373-386. [English, French and Italian summaries.] 2893

It was found that 80–90% of plants of *R. acer* in the alpine pastures studied were eaten by grazing cattle. Although no harmful effects on the cattle were noticed, G. discussed possible toxic actions of the plant.—R.M.

ANON. (1954). **Spread of poisonous Cape tulip must be checked.** — *N.Z. J. Agric.* **88,** 27. 2894

A plea for New Zealand householders and gardeners to eradicate the Cape Tulip [*Homeria* spp.], poisonous to man and animals, before garden escape can establish it further than the 3 small areas already affected. —A. SEAMAN.

NISSIM, J. A. (1954). **The mechanisms of toxicity of some iron preparations.**—*Brit. J. Pharmacol.* **9,** 103-105. [Author's summary modified.] 2895

Pulmonary haemorrhages produced by iron compounds without evidence of an iron precipitation led to a study of their anticoagulant activity. One compound, " ferrous chloride ascorbate," had an anticoagulant activity in rabbit blood (by weight of iron) almost as high as that of heparin. Pulmonary oedema produced by some iron preparations indicates severe capillary damage; when this is associated with a high anticoagulant activity of the compound the effects are much more severe.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

ANON. (1954). **Report of the Committee on Biologicals and Pharmaceuticals.**—*Proc. 57th Ann. Meet. U.S. live Stk sanit. Ass.* 1953. pp. 82-87. 2896

The Committee on Biologicals and Pharmaceuticals of the U.S. Livestock Sanitary Association made recommendations concerning the use, supply, and marketing of some vaccines, antibiotics, and other drugs. They recommended that virulent swine fever virus should be no longer used for immunizing pigs.—R.M.

GRATZL, E. & SZUMLAKOWSKI, R. (1953). Streptomycin-Blutserumspiegelbestimmungen bei Pferd, Rind und Hund sowie zwei Verfahren zur Spiegelverlängerung. **[Determination and prolongation of the streptomycin serum level in horses, cattle and dogs.]**—*Wien.*

tierärztl. Mschr. **40**, 547-565. [English, French and Italian summaries.] 2897

In horses, cattle and dogs, therapeutic serum concentrations of streptomycin after s/c injection could be maintained considerably longer by administering it in 33–50% aqueous solution, thus enabling injections to be spaced at intervals ranging from 12 to 24 hours in dogs to 48 hours in cattle. In horses the interval (24 hours) could be doubled by giving streptomycin (9%) in 10% solution of polyvinylpyrrolidone. Side effects were of minor importance with the dosages used (5 mg./kg. in cattle, 5–10 mg./kg. in horses, 50 mg./kg. in dogs).

—G. P. MARSHALL.

HENKELS, P. & EGGERS, H. (1953). Experimentelle Untersuchungen zur kombinierten Penicillin-Omnadin-Therapie. **[Action of penicillin in combination with "Omnadin" (a protein product) in the horse.**—*Dtsch. tierärztl. Wschr.* **60**, 337-341. 2898

A note on the use of stimulation of body defences by non-specific proteins, using a proprietary product as an addition to procaine penicillin, with details about leucocytosis and the the author had found to occur in animals so treated.—G. P. MARSHALL.

ALSTRÖM, I. (1949). Nyare synpunkter beträffande sulfapreparatens inverkan på djurorganismen. **[The effect of sulphonamides on the animal body.]**—*Nord. VetMed.* **1**, 250-257. [In Swedish. English summary.] 2899

A general account of the use of sulphonamides, and of certain metabolic disturbances the author had found to occur in animals so treated.—H. BOYD.

DALE, H. E. & UREN, A. W. (1954). **Blood concentrations of sulfisoxazole following administration of a standard dose to cattle.**—*Vet. Med.* **49**, 19-20. [Abst. from authors' summary.] 2900

Clinically effective levels of sulphafurazole in the blood of adult cattle were obtained only when the drug was injected i/v at the rate of 0·8 g. per lb. body wt., and these levels were maintained for only a relatively short period; oral and i/p administration at the same dosage were ineffective. The difference between free and total sulphafurazole was found to be relatively small.

ČERMAK, K. (1953). Liječenje opekotina konja po betmenu. **[Treatment of burns in horses.]** —*Vet. Glasn.* **7**, 280-282. [In Croat. German summary.] 2901

C. advocated a 5% aqueous solution of tannic acid locally followed immediately by a 10% aqueous soln. of silver nitrate.

—I. MARTINI.

FISCHER, H. & FRÖHLICHER, R. (1951). Fortschritte in der Behandlung schwerer und schwerster Hochspannungsunfälle. **[Treatment of high tension electric shock and burns.]** pp. vii+71. Stuttgart: Georg. Thieme. DM10.80. 2902

Whereas low-voltage shock, up to about 1000V, generally results in death from heart failure, and lightning strokes are followed rapidly by death due to paralysis of the respiratory and circulatory nerve centres, accidental contact with a high-voltage, heavy current supply commonly causes extensive burns and muscular lesions.

This booklet deals in detail with this last category of electric shock in man. In the majority of these cases, the current enters through the head, shoulders or arms and leaves through the feet. In these parts there is considerable burning and oedema, the muscle fibres have the appearance of "fish flesh" and shew Zenker degeneration, *i.e.*, oedema with loss of striation and necrosis of the worst-damaged parts. There is thrombosis of the veins and degeneration of peripheral nerves. Burned areas are also produced by the high-voltage arc formed on breaking contact with live parts of the installation.

Typical cases are well illustrated and the pathology of the lesions and treatment are described in detail. There is a sufficiently full and well-chosen bibliography; the booklet is clearly printed and is a useful contribution to the subject.—E.V.L.

See also absts. **2596** (chronic staphylococcal mastitis); **2613** (treatment of TB. in dogs and cats with streptomycin and P.A.S.); **2625** (antibiotics in *Pseudomonas pyocyanea* infection of the udder); **2635** (Synnematin B in *Salmonella* infection in chicks); **2663** (antibiotics in *V. fetus* infection); **2664** (treatment of mastitis); **2685** (aureomycin in *Babesia equi* in donkeys); **2817** (therapy of *Strongyloides* infestation); **2823** (control of stomach worms in sheep); **2868** (glycerol and propylene glycol in ketosis); **2882** (treatment of bovine chronic haematuria with formol); **2956** (treatment of reproductive disturbances in cattle).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

SEPE, V. (1953). Sialografija kod konja. **[Sialography in the horse.]**—*Vet. Arhiv.* 23, 103-111. [In Croat. English and German summaries.] 2903

An account of radiography of the salivary glands and ducts in horses and of the use of a contrast medium.—I. MARTINI.

DAVSON, H. (1953). **Some problems concerning the formation and circulation of the aqueous humour.** — *Brit. med. Bull.* **9**, 5-17. 2904

D. discussed factors controlling intra-ocular pressure, and the role of the aqueous humour in the nutrition of the lens and cornea. He had studied the concentration of chloride ions in the plasma and aqueous humour of various animals (g. pigs, pigeons, rats, dogs, cats, sheep, goats, pigs, oxen and horses). In all of them the concentration in the aqueous humour was higher than that in the plasma, and in general this excess was greater for large eyes than for small ones.

The guinea-pig exhibited a chloride deficiency relative to the plasma. The ratio of chloride concentration in the plasma to chloride conc. in the aqueous humour tended to fall as age increased. No such variations occurred in sodium ratio, nor in chloride ratios of c.s.f., which in many ways resembles aqueous humour. Photographs were reproduced of meridianal sections of frozen eyes of horses, elephants, sheep, cats, monkeys, rabbits, cattle, goats, pigs, dogs, g. pigs and rats. D. discussed, on the basis of kinetics, the rate of drainage of the aqueous humour and the penetration of the blood-aqueous humour barrier by sulphonamides, radio-active sodium and other substances.

—N. DEAN.

TURNER, H. G. (1953). **Dependence of residual milk in the udder of the cow upon total yield : its bearing upon supposed inhibition of secretion.**—*Aust. J. agric. Res.* **4**, 118-126. [Author's summary modified.] 2905

In order to examine the influence of variations in yield upon the amount of milk remaining in the udder after milking, residual milk was determined in each of 10 cows following several normal milkings. By varying the interval since the last milking, a range of amounts of milk in the udder at the start of milking was obtained. It was found that completeness of milking is to some extent dependent on the amount of milk present in the udder when milking starts. When intervals between successive milkings are unequal it is therefore incorrect to assume that yield at any milking represents the amount of milk secreted during the preceding interval. T. pointed out that the interpretation of data purporting to measure the inhibition of secretion caused by long intervals between milkings may consequently have to be greatly modified.

PANZENHAGEN, H. & SPEIRS, R. (1953). **Effect of horse serum, adrenal hormones, and histamine on the number of eosinophils in the blood and peritoneal fluid of mice.**—*Blood.* **8**, 536-544. [Authors' summary modified.] 2906

The authors described a rapid technique for eosinophile counts on peritoneal fluid (p.f.) collected from mice *intra vitam.* Simultaneous counts on the blood and p.f. at 3-hourly intervals over a 24-hour period revealed a marked diurnal rhythm in the blood eosinophiles, but not in those of the p.f. During a 3-hour period following stress, there was a drop in those in the blood, but not in those in the p.f. Following repeated i/p injections of 0·1 ml. normal horse serum there was a marked increase in the number in the p.f. In mice pretreated with horse serum, relatively large injections of cortisone, compound F, epinephrine and histamine produced a marked eosinopenia in the blood, but failed to reduce the number of eosinophiles in the p.f. within 3 hours. The response to cortisone of eosinophiles in blood and p.f. was essentially the same whether it was injected s/c or i/p. Following implantation of pellets of cortisone acetate in the peritoneal cavity, eosinopenia in the blood began within an hour, reaching a max. at approx. 3 hours. Eosinophiles in the p.f. began to drop 6–10 hours after the implantation. These data were interpreted as indicating that physiological doses of cortisone, compound F, epinephrine or histamine have no direct lytic action upon the eosinophiles of mice.

SCHREIBER, J. (1952). Die Herzklappenbewegungen des Rindes im Film. (Zur Vorführung eines Lehrfilmes in der Gesellschaft der Tierärzte in Wien am 17. Jänner 1952. **[A film recording the movement of the heart valves in cattle.]**—*Wien. tierärztl. Mschr.* **39**, 331-340. [English, French and Italian summaries] 2907

S. described a technique of filming the valves of the heart of the ox *in vitro,* and described the movements of the bicuspid and aortic valves. An instructional film accompanied the reading of this paper.—R.M.

GOODALL, A. M. & YANG, S. H. (1954). **The vascular supply of the skin of Ayrshire calves and embryos.**—*J. agric. Sci.* **44**, 1-4. [Abst. from authors' summary.] 2908

The authors described a method of perfusing the skin of the flanks and the backs of calves and embryos with Indian ink for study of the distribution of blood vessels in the skin.

Three plexuses of blood vessels were observed, (1) below the corium; (2) at a level between that of the ' sweat glands ' and the sebaceous glands; and (3) a deep network of many fine blood vessels extending from beneath the epidermis to above the second plexus. The authors discussed the presence of venae comites in the skin.

The ' sweat glands ' appear to have a very poor blood supply, while the hair follicles and papillae are richly supplied; both are supplied from the second plexus. The vessels of the third plexus appear to enmesh the individual hair follicles at different levels. Blood vessels supplying the skin in the back and flanks originate from the intercostal arteries and so pass through the heat generating intercostal muscles.

I. GRAFFLIN, A. L. & CORDDRY, E. G. (1954). ***In vivo* studies of the frog's liver during the excretion of thioflavine S and vasoflavine.**—*Johns Hopk. Hosp. Bull.* **94**, 1-21. **2909**

II. GRAFFLIN, A. L. & CORDDRY, E. G. (1954). ***In vivo* studies of the frog's liver during the excretion of esculin.**—*Ibid.* 22-26. **2910**

I. Fluorescence microscopy of the liver, following the injection of fluorescent dyes or esculin has been used for direct visual demonstration of the bile canaliculi and other aspects of hepatic structure and function. The authors described the results obtained when thioflavine S and a purified form (vasoflavine) were used in frogs.

II. An account of the use of esculin for the same purpose.

GRAFFLIN, A. L. & CORDDRY, E. G. ((1953). **Further studies of hepatic structure and function by fluorescence microscopy.** — *Johns Hopk. Hosp. Bull.* **93**, 205-224. **2911**

This is one of a series of papers [see also *V.B.* **23**, 3183 and preceding absts. *supra.*] dealing with hepatic structure and function in amphibia and mammals as revealed by fluorescence microscopy and the use of fluorescent dyes. A variety of abnormalities affecting the bile canaliculi were observed when the liver was subjected to ultra-violet radiation, anoxia, anaesthesia and other forms of injury. The changes included sprouting, tendril formation and beading.—E. G. WHITE.

ANDREWS, W. H. HORNER. (1953). **A technique for perfusion of the canine liver.**—*Ann. trop. Med. Parasit.* **47**, 146-155. **2912**

The author described the operative technique for maintaining blood supply while preparing the isolated liver, and the apparatus used for recording the arterial pressure, portal inflow and hepatic venous outflow. He found that a crude method for liver-volume determination was effective. The preparation will respond normally for at least 2 hours.—A. SEAMAN.

TANDA, S. (1952). Ricerche sul comportamento del connettivo nella cistifellea in animali domestici e selvatici. **[Histology of the gall bladder in some domestic and wild animals.]** — *Clin. vet., Milano.* **75**, 175-181. **2913**

From histological examination of the gall bladder of one of each of 7 domestic and 2 wild animal species, the relative amount of connective tissue in the wall of that organ was found to vary, in descending order, as follows: fox, dog, cat, goat, sheep, ox, pig, wild rabbit and domestic rabbit.—I. MARTINI.

HABEL, R. E. (1953). **The perineum of the mare.** —*Cornell Vet.* **43**, 249-278. **2914**

H. described in detail with illustrations the anatomy of the perineum of the mare. He referred to the female homologue of the retractor penis muscle as the labial ligament, and suggested that it plays a part in vaginal wind-sucking.—R.M.

BONFANTE, G. (1953). Separazione cromatografica, a luce ultra-violetta, del carotene dalla vitamina A, contenuti in estratti eterei di siero di sangue. **[Chromatographic separation in ultra-violet light of carotene from vitamin A contained in ether extracts of blood serum.]** — *Clin. Vet., Milano.* **76**, 309-314. [English and French summaries.] **2915**

B. described and illustrated a procedure for separating vitamin A from carotene in ether extracts of blood serum, employing alumina adsorption chromatography and observation in ultra-violet light, which was said to make possible the separate and accurate assay of the two compounds.—G. P. MARSHALL.

BARNETT, S. A. & MANLY, B. M. (1954). **Breeding mice at −3°C.** [Correspondence.]—*Nature, Lond.* **173**, 355. **2916**

The authors compared the breeding of laboratory strains of mice at temperatures below freezing with that of similar strains at normal temperature. Very little variation was noticed and fertility was almost unimpaired.

—W. S. MARSHALL.

See also absts. **2841** (thirst test in dogs with experimental lesions of the neurohypophysis); **2854** (iron excretion in the mouse); **2863** (metabolism of fatty acids in sheep); **2864** (reduction of sulphate in sheep rumen); **2878** (biochemistry of inflammation); **2928** (milk proteins and viability of spermatozoa); **2929-2932** (metabolic studies on spermatozoa); **2993** (book, physiological chemistry).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

PIETTRE, M. (1952). Inspection des viandes et des aliments d'origine carnée. Tome I. Industrie de la viande. **[Inspection of meat and meat products. Vol. I.]** pp. 583. Paris: Librairie J.-B. Baillière et Fils. 2nd Edit. Fr. 2800. **2917**

PIETTRE, M. (1953). Inspection des viandes et des aliments d'origine carnée. Tome II. Techniques de l'inspection. **[Inspection of meat and meat products. Vol. II.]** pp. 838. Paris: Librairie J.-B. Baillière et Fils. 2nd Edit. Fr. 4000. **2918**

I. & II. This is the second edition, the author having decided to re-write the work in two volumes following a world tour. It is indeed a massive production, dealing in great detail with meat and meat products, interpreted in the widest sense. While it deals essentially with French methods and regulations, it includes an almost world-wide survey of the meat industry.

In volume I, nearly fifty pages are given over to the histology, physiology and chemical nature of the body tissues. The author then deals with the meat industry in general, the dressing of carcasses, the planning and structure of new public and private abattoirs and the alteration of old ones, and describes the large industrial meat organizations all over the world, but especially those in North and South America. He describes in detail the transport of meat by road, rail and sea, and its distribution to markets. This is followed by a survey on the preservation of meat by heat, cold, desiccation and by antiseptics, but essentially by low temperature methods. There is a general discussion on methods of inspection and examination.

Volume II deals with the more detailed methods of examination for signs of the common infective diseases, various pathological conditions and physical and other changes. A large section is devoted to the preparation of offal, and to the pork industry. About eighty pages are assigned to the inspection of poultry and game and another hundred and forty to fish, crustaceans and shell fish. There is a chapter on horse flesh and another on the utilization of waste products.

It seems that the gun or captive bolt is not used in France for the large animals; calves and sheep are slaughtered with the knife without any previous stunning and pigs are felled with a mallet blow before bleeding. Despite repeated efforts of hygienists the custom of inflating carcasses by means of air forced under the skin by some form of bellows still persists, notwithstanding its dangers of infecting the carcass.

The book is well illustrated, there being 103 figures in the first volume and 140 in the second. Excellent illustrations are reproduced of the large industrial plants and the chapter on fish contains very good drawings of most of the numerous fish described.

There is no alphabetical index, which would have been extremely useful. There is, however, a list of the chapter headings.

The book is well printed and very readable and must be considered as a standard work to be consulted by those concerned with meat inspection. One cannot but feel that the subject matter might well have been compressed into a considerably smaller space without losing anything of importance.—D. S. RABAGLIATI.

WEINSTOCK, A. (1953). **A survey on the detection of horsemeat by the serological precipitin test.**—*J. Milk Tech.* **16**, 257-259. **2919**

An account of the technique of a precipitin test suitable for the detection of horse meat in cooked meat products.—R.M.

ANON. (1950). **Whalemeat inspection. Memorandum on a system of inspection and hygiene of whalemeat production.** pp. 6. Memo No. 2/Whalemeat. (Circular MF 2/50). London: H.M.S.O. 3d. **2920**

This memorandum made provision for the appointment of a veterinary surgeon with two meat inspectors under him, the facilities to be made available to him being laid down. Recommendations were made as to measures to be taken before treatment in the factory ship; the hygienic measures to be adopted during factory ship treatment; packing, transport and storage conditions; and criteria of inspection and the conditions requiring total condemnation of a carcass. The certification of meat for human consumption is the responsibility of the veterinary surgeon in charge.—G. V. LAUGIER.

NEVOT, A. & RICHOU, R. (1953). Les intoxications alimentaires de l'homme par le staphylocoque entérotoxique. **[Food poisoning in man caused by staphylococcus toxin.]**—*Bull. Off. int. Epiz.* **40**, May. pp. 295-308. [English summary.] **2921**

Whilst many foodstuffs of animal origin may contain staphylococci, outbreaks of food poisoning are usually associated with defective methods of hygiene and processing. The authors ascribed little value to the identification

of staphylococcal enterotoxins by animal inoculation and suggested that control can best be effected by improved hygiene and sanitary control of feeding stuffs and of processes involving foods.—G. V. LAUGIER.

KEIL, R. & HAUPT, G. (1953). Untersuchungsergebnisse und epidemiologische Erwägungen bei einer Massenerkrankung, hervorgerufen durch *S. typhimurium* in Schweinefleisch. [**Outbreak of food poisoning caused by** *S. typhi-murium* **in pork.**]—*Z. Hyg. InfektKr.* **137.** 115-125. **2922**

An account of an outbreak of food poisoning caused by *S. typhi-murium* in pork which had been boiled on the previous day and eaten without re-cooking; it might have been contaminated by mice. Of 230 persons affected, 50 excreted the organism, more than half of them for longer than a week; one patient excreted it for 40 days. Specific agglutinins were found in both carriers and non-carriers. Details were given of the toxin production of cultures isolated in the outbreak.—H. BEHRENS.

ANON. (1948). Laboratoire du Service de l'élevage et des industries animales. [**Laboratory of the veterinary department, Madagascar.**]—*Arch. Inst. Pasteur. Tananarive.* pp. 95-97. **2923**

A fowl plague vaccine prepared by egg culture, adsorbed on to aluminium hydroxide and treated with formol was put into use. Notes were given on Teschen disease and on fowl leucosis. Benzene hexachloride was used against ticks and lice.—K. SLAVIN.

ANON. (1949). Sprawozdanie Sekcji Wet. Wszechzwiązkowej Akademii Nauk Rolniczych im. W. I. Lenina w Z.S.R.R. [**Report of the veterinary section of the All-Soviet agricultural academy (Lenin Academy).**] — *Med. weteryn.* **5,** 660-666. [In Polish. **2924**

This is a general account of the meeting of the above section. The work of Michurin and of Lysenko was given considerable prominence. Emphasis was laid on the importance of eradication of specific diseases such as brucellosis, and the improvement of infertility. The use of the Strain 19 brucella vaccine was condemned on the basis that its use was in opposition to the principles enunciated by the above workers.

The importance of mass treatment for helminth infestation, on the lines advocated by Skryabin was emphasized.

There was observation concerning the discovery of a new strain of *Bacillus anthracis* which was considered to be important. Ginsburg had found a non-capsulating strain of *B. anthracis,* and the mutation produced was stated to be of considerable importance.

—JOHN R. MITCHELL.

HRSTKA, K. (1953). Vládní nařízení o organisaci veterinární služby. [**Organization of the veterinary services in Czechoslovakia.**]—*Veterinářství. Brno.* **3,** 78-80. **2925**

Since the change of régime in 1948, the civil veterinary services in Czechoslovakia have been completely reorganized and private practice abolished. They are now all within the Ministry of Agriculture which operates partly through local government services, *e.g.* County and District National Committees. District veterinary departments supervise a number of smaller local branches. There is a veterinary ancillary service which undertakes certain duties under the control of the veterinary staff.

—E.G.

EICHHORN, E. (1951). Beiträge zur Geschichte der tierärztlichen Fakultät der Ludwig-Maximilians-Universität zu München. [**The history of the veterinary faculty in Munich University.**] — *Inaug. Diss., Munich.* pp. 92. **2926**

In 1940, veterinary instruction and research had been carried on in Munich for 150 years: E. gave an account of the history of the Faculty, together with the names of past and present staff.—S. E. FOX.

See also absts. **2605** (atypical anthrax in pigs); **2607** (longevity of tubercle bacilli in calabash milk).

LIVESTOCK HYGIENE

See absts. **2638** (transmission of fowl typhoid); **2692** (leucocytozoon infections of poultry); **2871** (swill feeding with reference to vesicular exanthema and trichinosis).

REPRODUCTION AND REPRODUCTIVE DISORDERS

WILLETT, E. L. & LARSON, G. L. (1953). **Effect of transportation upon fertility of dairy bulls.**—*J. Dairy Sci.* **36,** 1186-1189. **2927**

The authors studied the fertility of 36 bulls before and after transport by road or rail over distances of 300–900 miles. They found that,

contrary to popular belief, the transport of bulls had no deleterious effect on their fertility.
—R.M.

THACKER, D. L., FLIPSE, R. J. & ALMQUIST, J. O. (1954). **Diluters for bovine semen. II. Effect of milk proteins upon spermatozoan livability.** — *J. Dairy Sci.* 37, 220-227. [Authors' summary slightly modified.] 2928

In attempts to identify a factor in unheated skim milk which is toxic to spermatozoa, casein and protein-free milk serum were prepared and found devoid of the toxic factor.

Milk serum protein fractions prepared by ammonium sulphate additions and pH adjustments were added to heated skim milk and to protein-free milk serum in order to test for spermicidal activity. The toxicity was associated only with the albumin-containing fractions. Heating these fractions at 92°C. for 10 min. eliminated the toxicity.

Heating of euglobulin and pseudoglobulin fractions resulted in a decrease in sperm viability when compared to similar fractions unheated.

HUHN, J. (1953). Untersuchungen über die Bedeutung der Hyaluronidase für die Vitalität des Spermas. **[The role of hyaluronidase in the vitality of spermatozoa.]** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. 2, Pt. 1. 717-721. [In German. English and French summaries.] 2929

Hyaluronidase seems to be localized in the galea capitis of the spermatozoa and release of the enzyme occurs if the galea is damaged. Malformation of the spermatozoa is indicative of injury and an ejaculate rich in hyaluronidase has reduced fertilizing power.—IAN NEWSAM.

WHITE, I. G. (1953). **Metabolic studies of washed and diluted ram and bull spermatozoa.**—*Aust. J. biol. Sci.* 6, 706-715. 2930

Repetitive washing and dilution of ram and bull spermatozoa does not affect oxygen consumption of the cells. Both treatments markedly decrease total lactic acid production which may be partly restored by the addition of potassium to the medium.—A. W. BLACKSHAW.

WHITE, I. G. (1953). **Studies on the alkali metal requirements of ram and bull spermatozoa.** —*Aust. J. biol. Sci.* 6, 716-724. 2931

Potassium, which is necessary for the maintenance of motility of ram and bull spermatozoa, may be effectively replaced by rubidium. Caesium is less active and ammonium ions are ineffective, while lithium is toxic. High concentrations of potassium are also toxic and this toxicity is not decreased by the presence of sodium ions.—A. W. BLACKSHAW.

FLIPSE, R. J. (1954). **Metabolism of bovine semen. I. Uptake of glucose-C^{14} by bovine spermatozoa.**—*J. Dairy Sci.* 37, 425-430. [Author's summary modified.] 2932

The uptake of glucose by bovine spermatozoa was studied, using uniformly labelled glucose-C^{14} as a tracer. Spermatozoa were inactivated for use as controls or to stop a reaction by addition of formalin to the suspension. The presence of seminal plasma caused an apparent reduction in the uptake of glucose-C^{14} by spermatozoa. Using twice-washed spermatozoa this effect was not observed; additional washings tended to be detrimental to the spermatozoa. Uptake of radio-activity by washed spermatozoa was 5–8 times greater than the uptake (adsorption) by formalin-inactivated spermatozoa when suspensions of spermatozoa were incubated with glucose-C^{14} at 37°C. under air or nitrogen.

BRANTON, C. & PRATHER, W. B. (1954). **Metabolic responses of bovine spermatozoa to antibacterial agents.**—*J. Dairy Sci.* 37, 228-234. [Authors' summary modified.] 2933

In two experiments to determine the effects of antibacterial agents in egg yolk-citrate diluents upon viability and metabolism of bovine spermatozoa stored for 4 and 10 days at 4·5°C. it was found that streptomycin and penicillin, either singly or in combination, had beneficial effects on viability, whereas sulphanilamide was apparently detrimental. Sulphanilamide, streptomycin, and penicillin each depressed the utilization of total reducing substances and fructose and the production of lactic acid by the spermatozoa. Sulphanilamide gave the most marked metabolic effects. A combination of streptomycin and penicillin in the egg yolk-citrate diluent depressed spermatozoan metabolism almost as much as sulphanilamide and gave the best viability.

BROCHART, M. (1954). **Origin of half-stained spermatozoa obtained from live-dead differentiating stains.**—*Proc. Soc. Stud. Fertil.* No. 5. pp. 82-86. [Author's summary copied *verbatim.*] 2934

Epididymal maturation of ram and bull spermatozoa is linked up with a loss of permeability to eosin of the post-nuclear cap. In the minutes following ejaculation, seminal plasma

decreases the permeability to eosin of senescent spermatozoa. Nigrosin, at a 5 per cent. concentration, decreases the permeability to eosin of ram and bull spermatozoa. It is possible to demonstrate, under certain conditions, that, when the diluent is a stain, the first effect of a "dilution shock" on the cephalic membranes is an increase in the permeability of the post-nuclear cap.

BONADONNA, T., CARETTA, A. & CORRIAS, A. (1953). Indagini sui nemaspermi degli animali domestici mediante il microscopio elettronico. I. Delle microstrutture dei nemaspermi di *Bos taurus*. **[Electron microscopic study of the spermatozoa of the bull.]** —*Zootec. e Vet.* **8,** 369-389. 2935

The authors examined under the electron microscope bovine spermatozoa, prepared for this purpose by washing and diluting in distilled water. They made observations on the structure of the outer covering membrane, and the axial filament. There are 21 diagrams and photomicrographs.—R.M.

ORTAVANT, R. (1953). Existence d'une phase critique dans la maturation épididymaire des spermatozoïdes de bélier et de taureau. **[A critical phase in maturation of spermatozoa of the bull and ram.]** — *C. R. Soc. Biol., Paris.* **147,** 1552-1556. 2936

Epididymes were obtained from 27 rams which had not served for the month preceding slaughter, and from 5 bulls. The organs were considered as divided into 6 zones, the proximal and distal parts of the head, body and tail respectively, and differential staining by 2 methods, which gave results that agreed, was complete within one hour of slaughter. Peak percentages of sperms taking up stain were shown not only in the ductus deferens (attributed to the senescence of the cells) but also in the body of the epididymis. The author gave reasons and additional results to support the view that this latter peak is not an artefact. The rise in eosin-permeability coincides with the migration of the cytoplasmic droplet from the front to the rear of the middle piece. He discussed the results in the light of previous work on the subject.—F. L. M. DAWSON.

PRABHU, S. S., GUHA, S. & BHATTACHARYA, P. (1953). **Replacement of plant proteins by animal proteins in the rations of breeding bulls and its effect on semen production.**—*Indian J. vet. Sci.* **23,** 175-184. [Abst. from authors' summary.] 2937

The authors studied the effect on the semen production and reaction time of 4 Kumauni Hill bulls, of replacing 30% of the crude proteins in their normal rations by bloodmeal for a period of 4 months. Analysis of the data revealed no significant differences in the various semen characteristics and the reaction time of these bulls as compared with 4 controls on normal rations.

MACMILLAN, E. W. (1954). **The effects of interruption of the vasal and inferior epididymal arteries on the cauda epididymidis and testis.** —*Proc. Soc. Stud. Fertil.* No. 5. pp. 12-19. [Author's summary modified.] 2938

The author studied the degenerative processes following interruption of the blood supply to the cauda epididymidis in the rat. Under certain conditions ligation and division of caudal arteries is followed by widespread tubular necrosis. On occasions loculation of a tubular segment may occur between two separate lesions and so encourage the superimposition of a secondary infection. There appears to be little or no disturbance of testicular function.

It is suggested that a constant sperm stream issues from the testis, and transverses the vasa efferentia to reach the tortuous windings of the ductus epididymidis. Its rate of flow diminishes towards the tail; it is postulated that the vaso-epididymal loop contains a sperm pool, the volume of which under conditions of captivity is maintained by a periodic overflow into the proximal vas deferens.

Comparison of the blood supply of the cauda epididymidis in the rat and in man revealed a similarity of pattern, but in the rat direct anastomoses between epididymal and testicular arteries are absent.

Pathologically the cauda epididymidis is the most vulnerable portion of the male genital tract, between testis and prostatic urethra; its anatomical features therefore are worthy of consideration.

The formation of a caudal spermatocele may follow interruption of epididymal arteries in the rat; it is possible that a similar pathogenesis occurs in man.

Careful observation of the epididymal blood supply in the surgery of the inguinal canal is therefore recommended.

DAUZIER, L. (1953). Recherches sur les facteurs de la remontée des spermatozoïdes dans les voies génitales femelles. Etude chez la brebis (col de l'utérus). **[The passage of spermatozoa in the genital tract of the ewe.]**—*C. R. Soc. Biol., Paris.* **147,** 1556-1558. 2939

D. denied the authenticity, for the sheep,

of Vandemark's [*V.B.* **22,** 600] view that the inherent motility of the sperm is not important in enabling it to reach the ovum, and has shown [*V.B.* **22,** 3884] that it takes 8 hours for a normal ram sperm to reach the upper part of the tube during oestrus. In three ewes that had been inseminated intracervically with 0·3 ml. heat-killed semen the sperms appeared to have made no progress at all when the animals were slaughtered 8 hours later. A similar result was obtained with three more ewes inseminated with the same dose plus added seminal plasma and also served by a vasectomized ram, thus to some extent discounting the possibility of "activator" seminal substances and the effect of neuro-hormonal copulatory mechanisms. Four ewes killed after a single hour yielded most of the inseminated sperms from the injection site. However, as there is little ascent in the dioestrous ewe even by healthy semen, the female organs during oestrus must play some part as described by Vandemark. This may be largely passive, *e.g.* the viscosity change in the cervical mucus, which Berrang (1952) described for the cow.—F. L. M. Dawson.

Braden, A. W. H. (1953). **Distribution of sperms in the genital tract of the female rabbit after coitus.**—*Aust. J. biol. Sci.* **6,** 693-705. 2940

The mean number of spermatozoa in the cranial half of the vagina one hour after coitus was $8{\cdot}5 \times 10^6$ decreasing to $1{\cdot}9 \times 10^6$ between one and 4 hours. The caudal halves of the uterine horns contained $0{\cdot}9 \times 10^6$ sperms at one hour without any change up to 28 hours. The mean number of sperms in the cranial halves of the uterine horns rose from $0{\cdot}05 \times 10^6$ at one hour to $0{\cdot}42 \times 10^6$ at 4 hours. The fallopian tubes contained no sperms until 3 hours after mating, the number in the entire tube reaching 5,000 at 6 hours and remaining constant. It was concluded that the cervix and the utero-tubal junction are the main barriers in limiting sperm transport in the rabbit.

—A. W. Blackshaw.

Cseh, S., Paál, S. & Becze, J. (1953). **[Diagnosis of pregnancy in mares.]** — *Acta vet. hung.* **3,** 353-363. [In Russian. Abst. from German summary.] 2941

The authors find that the vaginal mucus is an important aid for the diagnosis of pregnancy in mares. From about the 30th day of pregnancy the mucus is viscous, the finger does not slide over the vaginal mucous membrane easily; a drop of mucus pulls apart between the fingers into 6–8 transparent threads. If there is no pregnancy, the finger slides smoothly over the mucous membrane, and the mucus, tested for viscosity between the fingers, forms just one thread with a drop in the middle. In certain pathological conditions, though the mucus may be misleadingly viscous and form several threads, these are not transparent, but yellowish-white.

The condition of the uterus with regard to shape and tonus is dependent on the alternating predominance of the sympathetic and parasympathetic nervous systems. While the animal is on heat, the horns of the uterus are erect, the cervix soft. During the functioning of the corpus luteum, when the sympathetic system dominates, the horns are soft, and the cervix tight and small. A fully sympathetic picture does not develop until the third month of pregnancy. But even in the early stages of pregnancy, a large and markedy relaxed portio, with the vaginal mucus characteristic for pregnancy, may be an indication of threatening abortion.—A. Mayr-Harting.

Tsunekane, T., Terada, K. & Watanabe, M. (1953). **Early diagnostic method for pregnancy in the cow by estrogen.**—*Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo.* No. 26. pp. 135-147. [In English.] 2942

When 100,000 i.u. of oestrogen are injected s/c between the first and third days before the first expected oestrus following insemination, a pregnant cow will not show signs of oestrus.

—Kogi Saito.

Harris, K. (1953). **Faeces as test-material for pregnancy diagnosis in mammals.** — *Indian vet. J.* **29,** 491-500. 2943

Bhaduri [*V.B.* **23,** 1049] had claimed that injections of aqueous faecal extracts into male toads caused emission of spematozoa in cloacal fluid only if the faeces were from a pregnant cow. H. failed to confirm this and obtained positive reactions with faeces from non-pregnant, castrate and entire male animals of various domestic and laboratory species, as well as from pregnant females, and with food materials.

—R. N. Mohan.

Crooke, A. C., Butt, W. R., Ingram, J. D. & Romanchuck, L. E. (1954). **Chemical assay of gonadotrophin in urine.** — *Lancet.* **266,** 379-383. [Authors' summary modified.] 2944

The authors described a chemical method for the separation and determination of a gonadotrophic substance, G.A., in normal urine. This method is specific, sensitive, rapid, and

reproducible. They studied the excretion of G.A., in various groups of normal people and in women with amenorrhoea of unknown aetiology and secondary to post-partum necrosis of the pituitary gland.

HILL, D. L., PETERSEN, W. E. & COHEN, S. H. (1954). **Assay of cows' urine for pregnanediol.** —*J. Dairy Sci.* **37,** 355-359. [Authors' summary and conclusions modified.] 2945

Urine specimens from pregnant cows were assayed for pregnanediol, using the gravimetric methods for recovering this substance from human urine. No pregnanediol was recovered. If present, the quantities were too small to be measured by these procedures.

MESCHAKS, P. (1953). **Hormonal imbalance in bulls with different forms of sterility.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 2, Pt. 1. 735-738. [In English. French and German summaries.] 2946

M. assessed the content of neutral steroids in the urine of 96 bulls. Twenty-eight normal bulls excreted an average of 22·7 mg./litre: 24 bulls with inability to serve excreted an av. of 27·66 mg./litre and 24 completely sterile bulls had an av. excretion rate of 35·24 mg./l. Prevention of cooling of the testes, testicular biopsies and change in environment could increase the excretion rate to 40 mg./l.

—IAN NEWSAM.

RISS, W. & YOUNG, W. C. (1954). **The failure of large quantities of testosterone propionate to activate low drive male guinea pigs.**—*Endocrinology.* **54,** 232-235. [Abst. from authors' summary.] 2947

In male g. pigs with a low level of libido, treatment with testosterone propionate did not improve performance even when more than 20 times the " threshold " dose, (*i.e.*, the dose which restores sex drive in castrated g. pigs to the level recorded before castration) was injected.

TILLMAN, H. & GEHRING, W. (1953). Über die Reaktionsfolge der Leukozyten bei einigen Tierarten während des Sexualzyklus und nach Verabreichung von Oestrogenen. [**The effect of the oestrous cycle and of the administration of oestrogens on the leucocytes of some species of animals.**]—*Zbl. VetMed.* **1,** 49-62. [English and French summaries.] 2948

In cows the total number of leucocytes is lowest during involution of the corpus lutem; it increases at the beginning of the oestrous cycle and decreases with follicle growth in the pre-ovulation phase. Follicle maturation and ovulation produce rapid leucocytosis. Eosinophiles are highest at the time of ovulation. Neutrophiles decrease at the beginning of oestrus. Parenteral administration of oestrogens in horses slightly increases the neutrophiles.

—W. R. BETT.

I. VAN RENSBURG, S. W. J. (1953). **Research into fertility in cattle and sheep** [in S. Africa]. —*J. S. Afr. vet. med. Ass.* **24,** 69-79. 2949

II. VAN RENSBURG, S. W. J. (1953). **Bovine sterility caused by infectious disease in South Africa.**—*Brit. vet. J.* **109,** 226-233. 2950

I. An outline of infertility problems in cattle and sheep. Investigation should be directed to the herd rather than to the individual. The author discussed infectious systemic and infectious coital diseases. *Corynebacterium ovis* infection in sheep is serious because of frequent involvement of the epididymis. The incidence of cystic ovaries in both species is increasing rapidly and may cause greater loss than infectious sterility.

II. The paramount importance of venereal diseases in infectious forms of sterility is recognized, but infertility may also be due to TB., " lumpy skin " disease, and *Globidium* infection. Brucellosis and trichomoniasis cause little concern but vibriosis, which is prevalent, can be confused with infectious epididymitis and vaginitis.

The author discussed contagious anterior vagino-cervicitis and contagious epididymitis and vaginitis (" epivag ") at length; they are both virus diseases and the latter is the most serious cause of infertility in South Africa. Semen from clinically sound bulls which have been test mated is used for the control of venereal infections.—IAN NEWSAM.

WILLETT, E. L., BUCKNER, P. J. & MCSHAN, W. H. (1953). **Refractoriness of cows repeatedly superovulated with gonadotrophins.** —*J. Dairy Sci.* **36,** 1083-1088. 2951

Multiple ovulation (5–40 ova) was induced in each of 15 cows by the injection of various gonadotrophic hormones on from 2 to 6 occasions. The number of corpora lutea after each treatment successively decreased, until further administration of hormone failed to provoke abnormal ovulation. This refractory state lasted for some months.—R.M.

EATON, O. N., SIMMONS, V. L., SYKES, J. F., WRENN, T. R. & HALL, S. R. (1953). **A study of the effect of stilbestrol induced lactation on dairy goats.** — *J. Dairy Sci.* **36,** 1089-1096. 2952

The authors induced lactation in goats by the injection of 0·5 mg. stilboestrol 3 times a week for 50 days, with results similar to those described by previous workers. [*V.B.* **12,** pp. 550-551; **14,** absts. 196 & 426; **16,** 305; **22,** 2967.]—R.M.

WOLTER, H. (1954). Die Beseitigung hormoneller Störungen bei Unfruchtbarkeit durch die Osterluzei (*Aristolochia clematitis*). [**Regulation of hormonal function in sterile cows with** *Aristolochia clematitis*.]—*Tierärztl. Umsch.* **9,** 98-100. 2953

Following an established medical usage, for amenorrhoea etc., W. treated 42 heifers with an extract of *A. clematitis* [dose not stated] by mouth; 27 of the heifers came into oestrus within 8 days and others responded later; 25 held to service. These results were later confirmed with larger numbers. In cases of ovarian cysts and nymphomania in cows, W. recommended that *A. clematitis* therapy should be preceded and combined with an injectable extract from the honey bee [details not given] and claimed that a cure may be obtained when synthetic hormones have failed.—F. L. M. DAWSON.

SETINSKI, Z. (1953). Dysfunctio m. retractoris penis u bika. [**Sterility resulting from dysfunction of the retractor penis muscle in bulls.**]—*Vet. Glasn.* **7,** 597-603. [In Croat. German summary.] 2954

S. described 3 cases of permanent contraction of the retractor penis muscle in bulls. Myotomy was not attempted.—R.M.

GÜNTHER, S. (1952/53). Zur Physiologie und Anatomie der inneren Geschlechtsorgane. V. Methodik zur Gewinnung von Eileiterinhalt bei der Hündin. VI. Über die operative Kontrolle einer auf physiologischen Wege in das Uterushorn der Hündin eingeführten Metallkanüle. [**Physiology and anatomy of the internal genital organs. V. A method for obtaining samples of the content of the fallopian tube of bitches. VI. Insertion of a metal cannula into the uterine horn of the bitch.**]—*Arch. exp. VetMed.* **6,** 331-344 & 345-347. 2955

The metal cannula described is introduced under epidural anaesthesia through the cervix of the bitch, and held *in situ* by a movable oval structure, previously fixed in the proper position, when the cervix contracts. A small glass tube allows collection of fluid for a period of 3 days with the bitch living normally. The fluid from the oviduct is collected from the most anterior portion of the cornu.—E. COTCHIN.

HOFMANN, W. [Professor for Bovine Disease at the School of Veterinary Medicine, Berne, Switzerland.] (1950). **The reproductive disturbances of cattle : their treatment and prophylaxis.** pp. 54. Berne: Hans Huber. Swiss Fr. 9.40. [Edited and translated from the German by: H. JONAS.] [Demy 8vo.] 2956

The author states in his preface that the book is written only from his personal experience; he quotes no authorities and the book is written at least as much for the peasant farmer as for the veterinarian. Its three parts deal with non-infectious, infectious, and male infertility.

The author's remarks on non-infectious infertility appear to the reviewer sane and well considered, based obviously on a background of sound agricultural and psychological knowledge. Although they might be better-informed on recent developments, it is a pity that this part of the book is cut so short. The suggestions that boron deficiency and excess of potassium can cause infertility are interesting.

The relatively lengthy section on the infectious aspect seems weak at many points. Much space is devoted to the epidemiology of brucellosis, but little to its control; on immunization the author says only: " vaccinations are at the disposal of the veterinarian ". He appears unaware that *Trichomonas foetus* has fulfilled Koch's postulates and his recommendations for the treatment of infected bulls, by insertion of drugs into the sheath, seem unsound. If examination of mucus samples for the organism is delayed, as recommended, until these reach the laboratory, many false negatives may be expected, in the reviewer's experience. Much space is given to the conditions of infectious vaginitis and coital exanthema.

As regards the male, the author is a strong protagonist of surgical interference as a cure for spasm of the retractor penis muscle, and has failed to find evidence among numerous offspring of treated bulls that the condition is inherited. The frequency of excessive use as a cause of bull infertility is stressed.—F. L. M. DAWSON.

GARM, O. (1949). **Investigations on cystic ovarian degeneration in the cow, with special regard to etiology and pathogenesis.**—*Cornell Vet.* **39,** 39-52. 2957

An account of a detailed investigation begun in 1946. G. concluded that cystic degeneration of the ovaries in the cow falls into one of two types. Pathologically the types are well defined, but the symptoms are only distinctive in extreme cases of either type. With care however their

clinical differentiation should generally be possible. The extreme example of type (1) is the ' nymphomaniac ' and of type (2) the ' buller ' exhibiting virilism. Gradations between these two extremes however are very common and generally symptomless so far as altered behaviour is concerned. The degree of symptoms displayed in type (2) is dependent on the age of the animal when it first becomes diseased, occurrence at an early age generally producing grosser changes both physically and psychologically. Type (1) is divided into 4 groups dependent on the presence or absence of oestrus and its intensity. A mild case of either type may present as its major symptom a failure to come into oestrus over a long interval of time. Both syndromes are the result of multiglandular effects. Type (1) is ovarian *cum* hypophyseal in origin (follicular persistency, the formation of follicular cysts, the absence of a corpus luteum and enlargement of the hypophysis). On the other hand type (2) is adrenal in origin (hyperplasia of the adrenal cortex). The ovaries in this latter type are small and sclerotic or cystically degenerated. G. described briefly the clinical symptoms of these two syndromes and the histological and pathological changes particularly in the ovaries, the adrenal glands and the hypophysis. Biochemical evidence was also given in respect of urinary steroids. The bacteriological evidence available suggests that bacterial infection of the genital system is not a major factor. Infection may however be superimposed. G. suggested that certain animals are more liable to display these syndromes by reason of an inherited predisposition. Initiation of the disease syndrome is most likely to begin at periods when great functional strain is imposed upon the endocrine system, *e.g.* at the height of lactation.—A. H. Hogg.

Dieter, R. (1954). Zur Pathologie der Leistungszucht. Zugleich ein Beitrag zur Entstehung der Eierstockszysten beim Rind. **[The pathology of breeding for production. Occurrence of ovarian cysts in high-yielding cows.]** — *Dtsch. tierärztl. Wschr.* **61,** 12-16. **2958**

D. described 21 cases, mostly of luteal, though sometimes of follicular cysts, in cows giving from 900–1,200 gal. These cases were associated with an apparent imbalance of the ration fed, which contained large amounts of brewers' grains and cereal offals; D. considers that excess of vitamins etc. supplied had a pathogenic effect, aggravated by lack of exercise.—F. L. M. Dawson.

Foley, R. C., Reece, R. P. & Leathem, J. H. (1954). **Histochemical observations of the bovine uterus, placenta, and corpus luteum during early pregnancy.**—*J. Anim. Sci.* **13,** 131-137. [Authors' summary modified.] **2959**

Alkaline phosphatase as determined by the Gomori (1939) method was present in substantial amounts in the endometrium, chorion, and corpus luteum during the early months of pregnancy in heifers. The enzyme was present in the endothelium of the uterine blood vessels, in the uterine glands and their secretions and just below the surface of the endometrium in both the cotyledons and in the intercotyledonary area. All samples of chorionic tissue were positive for alkaline phosphatase, the principal site of the enzyme being in the larger cells and especially the binucleate cells of the trophoblast and the foetal villi. The corpora lutea of pregnancy were positive for alkaline phosphatase with a medium reaction of the nuclei and cytoplasm of the lutein cells and an intense staining of the endothelium of the blood vessels. The reaction of the cells lining the maternal crypts to the test for alkaline phosphatase was identical with that of many cells in the foetal villi.

Neutral fats could not be demonstrated in the endometrium of heifers pregnant 25 to 35 days. All sections of chorion, however, gave a positive reaction especially at the base of the trophoblastic cells. Corpora lutea provided inconclusive results for neutral fats.

All sections of maternal endometrium, both cotyledons and the intercotyledonary area, gave a positive reaction to the Schultz (1924) test for cholesterol as well as all samples of chorion which were tested.

Black, W. G., Ulberg, L. C., Kidder, H. E., Simon, J., McNutt, S. H. & Casida, L. E. (1953). **Inflammatory response of the bovine endometrium.**—*Amer. J. vet. Res.* **14,** 179-183. [Abst. from authors' summary.] **2960**

The authors compared the development of pyometra in heifers in the follicular and luteal phases, and in " first-service " heifers and mature cows in the luteal phase of the oestrous cycle. Bull semen diluted with egg volk-citrate was deposited in the uterus in 3 oestrous and 3 twelve-day luteal-phase virgin heifers by laparotomy and puncture of the uterine wall. No response was demonstrable in the oestrous females at slaughter 24–36 hours later. In 2 of the luteal-phase heifers, however, the uterus contained pus.

Semen was deposited in the uterus by cervical insemination in 6 mature cows 8–12 days

after oestrus. The degree of response seen in the uterus at the time of slaughter was variable, ranging from no gross reaction in 3 to the presence of 4–5 ml. of pus in others. Response to rabbit semen similarly introduced in 2 other cows was likewise variable.

Comparisons were made of the response to identical semen samples introduced *via* the cervix using a Woelffer uterine catheter in paired luteal-phase virgin heifers and mature cows. None of the 4 cows developed pyometra, but pus was present in 3 of the corresponding heifers.

The mature cow does not appear to respond to insemination during the luteal phase of the oestrous cycle in the same manner as the virgin heifer, possibly because of an endocrine dysfunction underlying lowered fertility.

HADEK, R. (1953). **Observations in ova recovered from the oviduct and uterus of sheep.**—*J. Anat., Lond.* **87,** 435. [Only abst. given. Abst. from abst.] **2961**

An account of a study of 81 freshly ovulated ova recovered P.M. from ewes. The perivitelline space, apparently absent on ovulation, increased in extent as the ova descended the oviduct.—C. C. BANNATYNE.

PENNY, R. H. C. & ARTHUR, G. H. (1954). **Post-oestrual prolapse of the vagina and uterus in the gilt.** — *Vet. Rec.* **66,** 162-163. **2962**

The authors described an operation for reduction of a post-oestrous vaginal prolapse in young sows by laparotomy. Nembutal anaesthesia was used successfully and although reduction in this case was found impossible a successful outcome could be hoped for in earlier cases.—W .S. MARSHALL.

MCDONALD, L. E., MCNUTT, S. H. & NICHOLS, R. E. (1954). **Retained placenta — experimental production and prevention.**—*Amer. J. vet. Res.* **15,** 22-24. [Abst. from authors' summary.] **2963**

The corpus luteum was removed from 8 cows at approx. the 60th day of pregnancy, and the pregnancy was maintained by injecting progesterone until the 162nd to 237th day of pregnancy. Upon delivery, 7 of these 8 cows had retention of the placenta and many had an abnormally long gestation period. Histological study of the cotyledon-caruncle attachment of one cow revealed no sign of placentitis, although there was a firm adherence of the cotyledonary epithelium to caruncular epithelium.

A deficiency of progesterone before parturition was suspected as being responsible for the placental retention. The corpus luteum was removed from 5 cows between the 78th and 230th days of pregnancy and progesterone was either withheld after the removal or injected only until the 168th or 184th day of pregnancy, resumed on the 248th to 264th day of pregnancy and continued until the 278th day. All 5 cows delivered within 1–5 days after cessation of injections and all expelled the placenta within 24 hours. Histological study of sections of the cotyledon-caruncle attachment of one cow taken as early as 30 min. after delivery revealed a loosening of the cotyledon-caruncle epithelium.

There was a highly significant difference between the two groups in respect of the incidence of placental retention.

VAN DER PLANK, G. M. & HOITING, H. (1954). Erfelijke afwijking bij runderen. Voorlopige mededeling. **[Inherited diseases in calves of the Meuse-Rhine-Yssel breed.]** — *Tijdschr. Diergeneesk.* **79,** 149-150. [English, French and German summaries.] **2964**

A preliminary report on a hereditary ataxia with incontinence of urine and paralysis of the tail.—C. A. VAN DORSSEN.

FISCHER, H. (1953). Erbliche Haar- und Pigmentanomalien des Rindes. **[Inherited anomalies of hair and pigmentation in cattle.]**—*Fortpfl. Besamung Haustiere.* **3,** 89-92. **2965**

F. discussed hairlessness (lethal factor), congenital hypertrichosis, curly coat and albinism in cattle.—H. BEHRENS.

STORMONT, C. (1954). **Erythrocyte mosaicism in a heifer recorded as single-born.** — *J. Anim. Sci.* **13,** 94-98. [Author's summary modified.] **2966**

Other workers [*V.B.* **16,** 318] have observed red cells of more than one type (" erythrocyte mosaicism ") in cattle born as one of twins or perhaps of triplets.

The author presented evidence for erythrocyte mosaicism in a heifer recorded as single-born. Since mutation could be excluded as a cause of the mosaic, it was concluded that one of the two cell-types was derived from a missing twin. The only traces of this twin were the descendants of certain of its cells found in the viable heifer.

ELDRIDGE, F. E. & ATKESON, F. W. (1953). **Streaked hairlessness in Holstein - Friesian cattle. A sex-linked lethal character.**—*J. Hered.* **44,** 265-271. **2967**

The authors described an abnormality of

the hair-coat in which approximately perpendicular, irregularly narrow streaks of skin on various parts of the body were devoid of hair. The condition occurred in 17 female cattle directly descended from one cow in a pedigree herd of Holstein-Friesian cattle and had not, apparently, been reported previously. No male cattle were affected. There was an abnormal sex ratio in the family, namely 34 females to 12 males, which is not significantly different from the 2:1 ratio expected with a sex-linked lethal factor. It was concluded that the condition was inherited as a semidominant sex-linked lethal factor. It was reported that affected cows were more susceptible to cold than normal cows.—R.M.

See also absts. **2617** (*C. renale* and *C. pyogenes* in A.I. of cattle); **2666** (pleuropneumonia-like organisms and sterility); **2675** (survival of *Tr. foetus* in diluted bovine semen).

ZOOTECHNY

LØJE, K. (1953). Meddelelser fra praksis. I. Instrument til afhorning af kalve. II. Maske til bedøvelse af svin. [**I. Instrument for the dehorning of calves. II. Mask for anaesthetization of pigs.**]—*Maanedsskr. Dyrlaeg.* **63**, 111-115. **2968**

The dehorning instrument for calves described by Roberts [*V.B.* **22**, p. 730] is in effect a cylindrical chisel which is used to cut away the skin around the horn bud in calves, 2–6 weeks old. Ferric chloride is applied. The whole operation is done under local anaesthesia. The mask (which is illustrated) is for use with minor operations in young pigs. Trichlorethylene is used. The mask consists of 2 metal cylinders: one is about 10 cm. long and 5 cm. in diameter; a smaller cylinder about 4 cm. long and less than 5 cm. in diam. fits inside it. About 5 cm. from the end of the larger cylinder there is a plate perforated with numerous holes. The bottom of the smaller cylinder is a similar plate. Between these two perforated plates is placed a piece of bandage or cotton wool soaked in the anaesthetic.

—H. BOYD.

DEMPSEY, M., FURLONG, J. R. & KNEW, E. (1952/53). **An experiment on the curing of Sudanese sheepskins.** — *Colon. Pl. Anim. Prod.* **3**, 320-330. [Authors' summary modified.] **2969**

Straight-drying of sheepskins was compared with dry-salting in the hot and in the cold seasons in the Sudan; drying in the sun was compared with shade-drying, and rope-drying with framing. At each season nine batches of fifty skins each were treated. The skins were dressed in England as white suède. Straight-drying gave almost consistently the best leather, and cold season cure was better than hot. Damage was present in the raw skins and recognisable then microscopically, but not to the naked eye or on handling; in milder form it caused the grain to be rubbed off during processing, or holes to appear in the skins, while extreme damage led to complete disintegration.

The authors suggested that an immediate improvement in curing in the Sudan might be achieved by abandoning dry-salting, and by straight-drying the skins without delay, avoiding excessive heat in direct sunlight.

MOCHRIE, R. D., HALE, H. H., EATON, H. D., JOHNSON, R. E. & PLASTRIDGE, W. N. (1953). **A further study of effects of vacuum level and milking duration on udder health and milk production.** — *J. Dairy Sci.* **36**, 1223-1232. **2970**

A continuation of work previously reported [*V.B.* **23**, 3222]. Changes in vacuum level between 10 and 17 in. did not appear to affect milk production or the bacterial and chloride content and the leucocyte count of the milk. On the other hand, there was evidence of irritation of the udder (increased leucocyte count and chloride content of the milk) when milking machines were left on the udder for twice or 4 times the normal time.—R.M.

BONSMA, F. N. (1954). **Animal husbandry.**—*Fmg S. Afr.* **29**, 52-53. **2971**

B. outlined the duties of the recently formed Animal Husbandry Division of the Department of Agriculture. Measures are being taken to study pasture management, breed adaptability, milk recording and pig production.—W. S. MARSHALL.

TRIBE, D. E. (1953). **The importance of animal behaviour studies in animal production.**—*J. Aust. Inst. agric. Sci.* **19**, 28-33. **2972**

T. briefly reviewed progress in grazing behaviour studies and dietary self-selection experiments. He emphasised difficulties in the interpretation of results in terms of animal and grassland management, and made a plea that studies in animal behaviour should be left to workers specializing in that field alone. He listed 31 references.—R. I. SOMMERVILLE.

TECHNIQUE AND APPARATUS

MITCHELL, C. A. & PLUMMER, P. J. G. (1954). **A continuous method for the cultivation of microorganisms in liquid medium.**—*Canad. J. comp. Med.* **18,** 1-6. 2973

The authors described and illustrated a small working unit, comprising a reservoir for a stock of medium; a culture chamber or fermenter with provision for continuous supply of air or other gases from a compressed-air tank through a bottle; a receptacle into which culture can be siphoned from the fermenter; a clock for timing of the electrical circuit and regulating the volume of flow; and manifolds containing ultra-violet lamps attached to the 3 openings, for destruction of organisms in aerosols created within the machine. Aeration of a broth culture of *S. pullorum* gave a 12-fold increase over non-aerated control culture, with no qualitative difference. The unit could possibly be enlarged to provide for work on a large scale.

—R. GWATKIN.

I. VEALL, N. (1952). **Counters and ion chambers for the detection and measurement of radioactive isotopes.** — *Brit. med. Bull.* **8,** 124-131. 2974

II. REEVE, E. B. (1952). **Use of radioactive phosphorus for the measurement of red-cell and blood volume.**—*Ibid.* 181-186. 2975

III. GROVE, W. P. & CATCH, J. R. (1952). **Procurement of labelled compounds.** — *Ibid.* 234-245. 2976

IV. FAY, J. W. J. (1952). **Precautions in handling radioactive isotopes.** — *Ibid.* 246-253. 2977

V. SELIGMAN, H. (1952). **Production and supply of medically important radioisotopes.** —*Ibid.* 253-255. 2978

I. The authors described apparatus for the detection and measurement of radio-active isotopes, dividing them into the following groups:—gas-filled radiation detectors (this group includes the Geiger-Müller counter); ion chambers and counting tubes (β ray and γ ray counters); scintillation counters.

II. R. described the use of ^{32}P for the measurement of blood cell volume in man and dog, with references to the literature [see also *V.B.* **24,** 2509-2516].

III. The authors described methods of obtaining radio-active isotopes, and compounds labelled with them in the United Kingdom and the chemical and biological synthesis of labelled compounds. The synthesis of compounds labelled with ^{14}C from CO_2, cyanide, acetylene, cyanamide, formic acid, and methanol is illustrated in table form.

IV. F. dealt with the design and operation of laboratories and laboratory apparatus for work with radio-active isotopes, the protection of laboratory workers engaged thereon, and the disposal of wastes. He referred to safety standards adopted by the International Commission on Radiological Protection.

V. S. gave details of the radio-active isotopes used in medical research which are produced by the Atomic Research Establishment at Harwell, Berkshire. These were gold (^{198}Au), bromine (^{82}Br), carbon (^{14}C), cobalt (^{60}Co), iron (^{59}Fe), iodine (^{131}I), iridium (^{192}Ir), sodium (^{24}Na), phosphorus (^{32}P) and sulphur (^{35}S).—R.M.

JENNINGS, F. W., LAUDER, I. M., MULLIGAN, W. & URQUHART, G. M. (1954). **Some applications of radioactive isotopes in veterinary research.**—*Vet. Rec.* **66,** 155-161. 2979

The authors gave an account of isotope labelling of antigen in the study of helminth immunology, blood volume determination by isotopic methods and the investigation of anaemia related to *Fasciola hepatica* and discussed briefly the use of isotopes in research.

—W. S. MARSHALL.

See also absts. **2698** (culture of F. & M. disease virus); **2699** (titration of F. & M. disease virus in culture); **2704** (effect of freezing F. & M. disease vaccine); **2708** (removal of encephalitogenic factor from rabies vaccine); **2737** (preservation of rinderpest virus); **2748** (inactivation of swine fever virus with merzonin); **2761** (propagation of S virus of mouse hepatitis); **2780** (c.f. test for Q fever in sheep); **2808** (a skin test for liver fluke); **2809** (field test for fluke ova in faeces); **2859** (determination of vitamin B_{12}, using the alga, *Euglena gracilis*); **2944** (chemical assay of gonadotrophin in urine); **2997** (book, culture media); **2998** (book, biological stains).

MISCELLANEOUS

ROACH, R. W. (1953). **The role of a veterinarian in zoological collections.**—*N. Z. vet. J.* **1,** 154-159. 2980

R. discussed the role of the veterinary surgeon in the smaller and larger zoological gardens and parks in New Zealand, under the headings of administration, sentiment, feeding, treatment of disease, fundamental problems, restraint, and paediatrics.

—W. S. MARSHALL.

REPORTS

GREAT BRITAIN. (1952). **The West of Scotland Agricultural College. Report on the work of the College for the year ended 30th September, 1952.** pp. 64. Stirling: Jamieson & Munro Ltd. 2981

An investigation on the occurrence of dropsical calves has been completed. It is stated that data obtained from 325 cases show that the incidence of the condition is consistent with Mendelian expectations on the basis of an autosomal recessive gene. In the 60 herds investigated 20–30% of the dams which gave birth to dropsical calves died from dystocia or underwent embryotomy. Affected calves were more often born dead than alive. The gene has been present in the Ayrshire breed for a long time, but " the hierarchical nature of breed structure has caused it to become more widespread in pedigree herds ". Other routine investigations are being continued on the control of HELMINTH INFESTATION in hill sheep; ABORTION in ewes in which *Vibrio fetus* was isolated in two cases, and HYPOMAGNESAEMIA in ewes.—J. A. GRIFFITHS.

GREAT BRITAIN. (1953). **London School of Hygiene and Tropical Medicine. Report on the work of the School for the year 1952-1953.** pp. 125. London: The School. 2982

The work of the School both in teaching and research showed continued development.

Research work in progress in the various Departments is reviewed briefly in their reports. Professor Cruickshank began a study of the development of complete and incomplete (Coombs) agglutinins in g. pigs infected with *Brucella abortus*. It was found that *Br. melitensis* infection was present on about 20 farms in different parts of England. The organism was isolated from the milk of cows. No human infection was reported.—J. A. GRIFFITHS.

AUSTRALIA, NEW SOUTH WALES. (1953). **Livestock health report No. 26, recording the incidence of disease in stock and the research work accomplished during the year ended 30th June, 1950.** [HINDMARSH, W. L.] pp. 15. Sydney: A. H. Pettifer, Govt. Printer. 2983

There were ten outbreaks of ANTHRAX, chiefly in sheep and cattle.

Non-pathogenic mycobacteria were isolated from cattle which reacted to the tuberculin test but which had no visible lesions.

A case of JOHNE'S DISEASE was confirmed P.M. in an imported bull which had given three negative reactions to the i/d johnin test.

Treatment of SWINE DYSENTERY with neoarsphenamine or sulphonamides was not very satisfactory.

Strain 19 was used widely in the control of BRUCELLOSIS.

There were numerous outbreaks of BLACKLEG in cattle and one in sheep which was thought to have followed heavy GRASS SEED INFESTATION. The lesions were confined to the head of the sheep.

Outbreaks of bovine TRICHOMONIASIS were controlled by slaughter of infected bulls and provision of six months' sexual rest for cows after five intra-uterine treatments with iodine.

The method of detecting *Babesia* by inoculation of citrated blood from a suspected carrier into a splenectomized calf was not always reliable.

Outbreaks of CONTAGIOUS PUSTULAR DERMATITIS were common in lambs and there was some confusion with lesions of MYCOTIC DERMATITIS.

INFESTATIONS WITH EXTERNAL PARASITES (lice, ked and itch mite, *Psorergates ovis*) continued to be common. Figures are given for the numbers of sheep and properties quarantined for control of these parasites.

Application of D.D.T. and benzene hexachloride (B.H.C.) in the form of a " fog " from the TIFA apparatus to sheep immediately after shearing was highly effective against *Damalinia ovis*.

Losses from BLOWFLY STRIKE in sheep were estimated to amount to 10 to 15% of the total income from sheep and wool during the year. Dipping in B.H.C. at ten times ordinary dipping concentration gave protection against BODY STRIKE for 8 to 10 weeks.

Progress of eradication of *Boophilus microplus* was delayed.

MYCOTIC DERMATITIS was prevalent and in young lambs there were losses of up to 50%.

Unusually mild and wet weather favoured HELMINTH INFESTATIONS which were very severe in sheep and cattle.

COPPER DEFICIENCY has been diagnosed in four districts.

Co-operative studies on TOXAEMIC JAUNDICE of sheep showed that even one season's grazing on the heliotrope plant may produce liver damage which interferes with carbohydrate metabolism and that this is accentuated by administration of molybdenum.

Severe mortality occurred in pregnant ewes following ingestion of *Oxalis corniculata*.

—H. McL. Gordon.

I. Southern Rhodesia. (1953). **Veterinary Report, Field Branch, March, 1953.**—*Rhodesia agric. J.* **50**, 238-244. **2984**

II. Southern Rhodesia. (1953). **Veterinary Report, Field Branch, April and May, 1953.** [Mackinnon, J.]—*Ibid.* 334-344. **2985**

III. Southern Rhodesia. (1953). **Veterinary research monthly report for April and May, 1953.** [Adamson, J.]—*Ibid.* 345-347. **2986**

I, II & III. Major animal diseases confirmed in S. Rhodesia during the period reported included Blackleg, Trypanosomiasis, Theileriasis, Piroplasmosis, Anaplasmosis, Bluetongue and African Horsesickness. F. & M. Disease due to virus type S.A.T.1 and more recently S.A.T.2. occurred and was controlled by vaccination with homologous field virus. Contagious Epididymitis and Vaginitis were the subject of control measures, but Contagious Abortion control using Strain 19, was hindered by apathy on the part of the cattle owners. Heartwater and Swine Erysipelas were reported occasionally. A large scale Rabies vaccination programme was under way to control a recent outbreak.

The major diseases of poultry reported were Spirochaetosis, Fowl Typhoid, Coccidiosis, Pullorum Disease and Fowl Pox.

Psittacosis was confirmed at one centre, and all the birds were destroyed.

—J. E. Smith.

Cyprus. (1953). **Department of Agriculture. Annual Report for 1952. Annexure I. Annual Report of the Chief Veterinary Officer for 1952.** [Roe, R. J.] pp. 12. [Mimeographed.] **2987**

Vaccination against Anthrax has been compulsory for over 20 years. There were only two deaths from Anthrax—a goat and a pig.

Fifty-two thousand sheep were vaccinated against Bluetongue.

Enterotoxaemia of sheep is associated with over feeding and insufficient exercise.

Coccidiosis occurs among cattle, sheep, poultry and rabbits.

Fowl Typhoid, Fowl Pox, and Avian Spirochaetosis are endemic.

Helminthiasis among sheep and goats is being controlled by the use of phenothiazine by the owners.

Production at the Veterinary Laboratory included 730,000 doses of Anthrax vaccine, some Fowl Pox egg adapted vaccine and the imported concentrated Bluetongue vaccine was processed before issue to the field staff. Research work was carried out on Contagious Pustular Dermatitis, Q Fever, Phosphorus Deficiency and the control of *Oestrus ovis* in sheep. There were 1,571 P.M. examinations and 2,706 specimens were examined.

Echinococcus is the most common cause of condemnation at abattoirs. To control this free supplies of arecoline-acetarsol tablets are issued to dog owners. *Cysticercus cellulosae* in pigs and cattle is less frequent as a result of improved sanitation. Other causes of condemnation were Distomiasis, Emaciation, Dropsy, Respiratory Disease, bruising etc.

—J. A. Griffiths.

(1949). Eläinlääkintölaitos, maatalousministeriön elainlääkintoosaston kertomus vuosilta 1945-1946. **[Finland : Report of the veterinary section of the Ministry of Agriculture, Finland, 1945-46.]** pp. 50. Helsinki. [8vo.] [Swedish and French summaries.] **2988**

In 1945 a law was enacted founding the new Veterinary College at Helsinki. In 1946 a new milk control law provided for the veterinary supervision of milk hygiene. A law dealing with the export of poultry and game was passed in 1947. In 1948 the inspection of diseases of bees was made a duty of the veterinary service. There were 258 veterinarians in Finland in 1948.

Details were given of the system of milk control, the control of mastitis in cows and of an Encephalo-Hepatitis in horses, and of the campaign for the eradication of the warble fly.

In an average year within the period reported the State Veterinary Laboratory examined well over 100,000 specimens: these included several thousand for Mastitis, something in the order of over 2,000 for Contagious Abortion, a large number for parasites and some for pregnancy diagnosis.

The amounts of tuberculin, mallein and of sera prepared were stated.

Details were given of the number of outbreaks of Anthrax and Glanders reported. Rabies had been absent since 1945. Large numbers of samples were examined for *Vibrio fetus* infection and for various poultry diseases.

Evacuation of cattle from the eastern part of Finland had resulted in the spread of Contagious Abortion of cattle in 1945. Details were given of the numbers of animals inspected in 1945. There were 19 abattoirs dealing with carcasses for export, this including reindeer

meat. Details were given of the extent of the export trade in meat and meat products.

—H. WESTERMARCK.

U.S.A. (1953). **Report on the Agricultural Experiment Stations, 1952. Prepared by the Office of Experiment Stations.** [TRULLINGER, R. W.] pp. 150. Washington: U.S. Govt. Printing Off. 40 cents. [Items of veterinary interest pp. 65-91.] 2989

A formaldehyde-killed bacterin containing smooth phase *Haemophilus bovis* gave cattle a solid immunity up to 6 months against INFECTIOUS KERATITIS.

Pigs can be immunized against SWINE FEVER using vaccine prepared from virus attenuated with nitrogen mustard. This vaccine can be used up to 24 hours after preparation.

An intradermal test for LIVER FLUKE INFESTATION in cattle has been evolved by Puerto Rico Station [no details are given]; 94% of tests carried out were positive.

The function of vitamin B_{12} and aureomycin in calf nutrition is still unsettled. Aureomycin is of value in controlling scours, and calves on a number of experimental stations grew faster than the controls and ate 9% less food per unit of gain. After the rumen begins to function aureomycin is a handicap to the digestion of roughage. Large amounts of antibiotics inhibit the growth of certain types of rumen flora, whereas low concentrations of penicillin and other antibiotics, except chloramphenicol, stimulated the growth of cellulolytic rumen micro-organisms. Giving cobalt instead of vitamin B_{12} was not successful for young calves, although in adult cattle it appears to stimulate the synthesis of vitamin B_{12}. Feeding vitamin B_{12} does not relieve COBALT DEFICIENCY symptoms.

Cortisone is a cure for KETOSIS of dairy cattle. Maryland Station investigators consider this to be caused by adrenal deficiency resulting from improper functioning of the pituitary gland. Cortisone or A.C.T.H. are equally effective in correcting the deficiencies. New York Cornell Station report that sodium propionate in doses of half a lb. daily cured some cases.

Study is being continued on possible additional causes of " X DISEASE " (HYPERKERATOSIS). Farmers are being advised to prevent cattle having access to waste lubricants such as waste crank-case oil, oil drums, etc.

Other diseases being investigated are AIR SAC INFECTION of poultry, probably associated with SINUSITIS of turkeys and NEWCASTLE DISEASE.

Trichlorethylene-extracted soya bean pellets, when fed to cattle, caused internal haemorrhages and heavy losses.

—J. A. GRIFFITHS.

BOOK REVIEWS

——. (1954). **Autotrophic micro-organisms. Fourth Symposium of the Society for General Microbiology, held at the Institution of Electrical Engineers, London, April 1954.** [Edited by FRY, B. A. & PEEL, J. C.] pp. viii + 305. London: Cambridge University Press. 25s. 2990

A report on the fourth symposium of the Society for General Microbiology on autotrophic micro-organisms.—R.M.

ANON. (1954). **Veterinary drug encyclopedia and therapeutic index. A listing of veterinary drugs, biologicals and foods of American manufacturers.** [Edited by: STEPHENSON, H. C. & MITTELSTAEDT, S. G.] pp. 239. New York: Drug Publications, Inc. 2nd Edit. $5. 2991

This book was first published in 1953, and is now in its second edition. In the main section about a thousand pharmaceuticals used in veterinary practice in the U.S.A., including prepared foods for small animals, are listed in alphabetical order under their proprietary names. The composition, indications, and mode of administration of each preparation are described. There is a good therapeutic index, and lists of drugs produced by each of 86 manufacturers. This is a useful reference book for those who study American veterinary literature.

—R.M.

——. (1954). **Insecticides and colonial agricultural development. Proceedings of the Sixth Symposium of the Colston Research Society held in the University of Bristol, March 23rd-27th, 1953.** [Edited by WALLACE, T. & MARTIN, J. T.] pp. x + 169. London: Butterworths Scientific Publications. 30s. 2992

This symposium report constitutes a coherent survey of the general problems facing Colonial Agriculture with reference to insecticides and their application. The importance of crop protection in the Colonies and the research methods being developed are discussed as an introduction, and the volume then handles some

of the major items of interest. These include locust control, the control of cotton pests, the problem of insecticides and biological control, insect and tick-transmitted diseases, and conclude with an article on spraying technique and machinery. Great credit is due to the Colston Research Society and to the publishers for this useful work.—D. S. PAPWORTH.

ANDERSON, A. K. [Professor of Physiological Chemistry, The Pennsylvania State College.] (1953). **Essentials of physiological chemistry.** pp. vii + 480. New York: John Wiley & Sons. Inc.; London: Chapman & Hall, Ltd. 4th Edit. 40s. 2993

The author claims to give a good basic knowledge of biochemistry to readers with limited backgrounds in chemistry and biology. He has achieved a reasonable degree of success, and no important errors are detectable. The choice of subject matter is excellent, and the book seems reasonably balanced in view of its elementary nature.

Criticism may be levelled, however, at the style of writing in many sections of the book, which consists of short staccato sentences born of the good intentions to impart a maximum of knowledge from a minimum of paper.

—D. S. PAPWORTH.

——. (1953). **Nature and structure of collagen. Papers presented for a discussion convened by the Colloid and Biophysics Committee of the Faraday Society at King's College, London, on 26 and 27 March, 1953.** [Edited by: RANDALL, J. T.] pp. ix + 269. New York: Academic Press Inc.; London: Butterworths Scientific Publications. [Demy 8vo.] 42s. 2994

It would be difficult in the space available to cover the detailed scope of this discussion on the nature and structure of collagen. Both the authors and publishers have provided an exellent example on how a symposium or discussion should be recorded. The book is crowded with photographs of the structure under review, and includes samples of electron microscopy, X-ray diffraction patterns, electrophoresis, as well as more ordinary photomicrographs. Among subjects dealt with are:—Histology of connective tissue and its derivatives; Nature of reticulin; Metabolism of collagen; Electrophoresis of, and scattering of light by collagen solutions; Precursors of skin collagen; Physical and chemical problems of fibre formation and structure; High-angle X-ray diffraction of collagen fibres; Infra-red absorption and collagen structure.

—D. S. PAPWORTH.

SPEAR, F. G. (1953). **Radiations and living cells. An introduction to radiation biology, in which the action of penetrating radiations on the living cell is described, with special reference to the effect on cell division in human tissues.** pp. xii + 222. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd. $3.50. 18s. 2995

This book gives from an experimental angle, a concise account of the effect of penetrating radiation on normal and diseased tissues in man. Each section begins with a short description of a non-irradiated tissue for comparison with the changes brought about by exposure to penetrating rays.

The author outlines the beginnings of radiation biology and the different types of living cells, and proceeds to describe the effects of irradiation on different tissues and organs, emphasizing the human picture wherever possible.

There is an interesting account of Atomic bombing as a source of external radiation with reference to the attacks on Japan, and the author concludes with a discussion of the theories concerning the mechanism of the action of penetrating rays on living cells.

—D. S. PAPWORTH.

DUMAS, J. [Chef de Service à l'Institut Pasteur.] (1953). Les animaux de laboratoire. Anatomie, particularités physiologiques, hématologie, maladies naturelles, expérimentation. **[Laboratory animals.]** pp. 719. Paris: Editions Médicales Flammarion. Fr. 3725. [Royal 8vo.] 2996

This book covers the anatomy, physiology, haematology, diseases and experimental use of the principal species of animals employed in laboratory investigations and with their maintenance and is directed mainly to readers with a good understanding of the principles of bacteriology.

Part I, covering some 110 pages, deals with the general features, anatomy and physiology, of the various species—guinea pigs, rabbits, mice, rats, hamsters, ferrets, birds, monkeys, dogs and cats, and briefly considers breeding methods.

Part II which includes a chapter on nutrition is mainly a discussion of the problems associated with animal quarters and the cleaning and disinfection of cages.

Part III deals with diseases—bacterial, viral and protozoan, as well as those due to helminths, ectoparasites, tumours and nutritional disorders. In general the information is most comprehensive but there are omissions, notably of Newcastle disease and psittacosis, in the sec-

tion on diseases of birds, and of Tyzzer's disease in mice.

Part IV deals with practical aspects of manipulation of animals in the laboratory including anaesthesia, inoculation, *post-mortem* examination and the disposal of carcasses.

The book therefore contains a great mass of information directly concerning laboratory animals and if one has a criticism to make it would be that too much space is devoted to rare or uncommon diseases and to detailed bacteriology and parasitology, whilst consideration of the general principles of hygiene and animal management are not given the attention they deserve. Print and paper are of good quality and the binding is adequate.

—J. S. PATERSON.

HALLMANN, L. (1953). Bakteriologische Nährböden. Ausgewählte Nährbodenrezepturen für das Medizinisch-Bakteriologische Laboratorium. **[Culture media used in medical bacteriology.]** pp. viii + 252. Stuttgart: Georg Thieme. DM 19.80. 2997

This book, a supplementary volume to the previously published "Bacteriology and Serology," is a practical handbook for the laboratory, designed to provide reliable working knowledge of culture media for bacteriological diagnosis. The subject matter is presented in two parts:—I. General, covering kinds of nutrient media and technique and including a reagent index on coloured pages; and II. Special, a larger section dealing with special culture media for different types of bacteria. The pages are cut and indexed so that reference may readily be made, for example, to a special medium preparation for tubercle bacilli, media for various purposes, synthetic media, or to the author and subject index.—E. MARSH JONES.

CONN, H. J. [Secretary, Biological Stain Commission.] (1953). **Biological stains. A handbook on the nature and uses of the dyes employed in the biological laboratory.** pp. 367. Geneva, N.Y., U.S.A.: Biotech Publications. 6th Edit. 40s. 2998

This volume based on the findings of the Commission on Standardization of Biological Stains comprises 11 chapters:—I. Uses and standardization of biological stains; II. The general nature of dyes and their classification; III. The theory of staining; IV. Spectrophotometric and chromatographic analysis of dyes; V. Nitro and azo dyes; VI. The quinone-imine dyes; VII. The phenyl methane dyes; VIII. The xanthene dyes; IX. The natural dyes; X. Miscellaneous dyes, pigments and histochemical reagents; and XI. Neutral stains.

This edition follows the fifth after an interval of seven years. Important changes include the references to histochemical usage of certain dyes and dye-like reagents and greater stress is laid on methods of identification of stains. Regarding the use of spectrophotometric measurements in characterizing dyes, there are some 20 illustrations in which spectral graphs of nearly all the stains on the certification basis are included; chromatography is also discussed. There are four appendixes:—I. Tables relating to stains; II. Methods for testing biological stains; III. General laboratory information and IV. Bibliography; and a good index.

—E. MARSH JONES.

EDGSON, F. A. & GWYNNE-JONES, O. (1954). **First-aid and nursing for your dog.** pp. 118. London: Melbourne; Sydney; Auckland; Bombay; Cape Town; New York & Toronto: Popular Dogs Publishing Co., Ltd. [Crown 8vo.] 7s. 6d. 2999

This book contains sound practical advice to the dog owner on first aid in injuries and other emergencies, on the treatment of some common disorders, and on the nursing of sick dogs. The various subjects are arranged alphabetically for easy reference. It is a book which can be recommended by a veterinary surgeon to his dog-owning clients.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

ANDERSON, G. W. & ARNSTEIN, M. G. (1953). **Communicable disease control. A volume for the health officer and public health nurse.** pp. xvii + 500. London: Macmillan & Co., Ltd. 3rd Edit. 45s. 6d.

COLLIER, H. O. J. (1954). **Chemotherapy of infections.** pp. xvi + 248. London: Chapman & Hall, Ltd. 18s.

—. (1953). **Standard methods of clinical chemistry. Vol. I. By the American Association of clinical chemists.** [Editor - in - Chief: REINER, M.] pp. xii + 142. New York: Academic Press Inc. $4.50.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey

DISEASES CAUSED BY BACTERIA AND FUNGI, **3000-3112.**

Identification of pathogenic and enterotoxic staphylococci. Review, **3000;** Pathogenicity and haemolytic properties of staph. from chickens, **3001;** Staph. infection in chickens, **3002;** Incidence of bovine mastitis, **3003;** Relationship between resistance to mastitis and presence in milk of substances which inhibit bacteria, **3004;** Bovine mastitis. 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ERRATA

V.B. **24**, 1032. Both the mare and later the foal were vaccinated with alum-precipitated tetanus toxoid (anatoxin) and not with antitoxin as stated in the abstract. In lines 3 and 6, for ' antitoxin ', please read ' toxoid '.

Ibid. 1586. The paging should read: 524-526.

Ibid. 2546. For MOITES, J., please read MEITES, J. The same change should be made in the Author Index.

List of Abbreviations

A.I. — artificial insemination
ant. — anterior
A.P.F. — animal protein factor
approx. — approximately
aq. — aqueous
av. — average

B.A.L. — British anti Lewisite (2,3 dimercaptopropanol)
b.p. — boiling point

c.f. — complement fixation
clin. — clinical
coeff. — coefficient
conc. — concentration
c.s.f. — cerebrospinal fluid

diam. — diameter
dil. — dilute(d)
diln. — dilution

E.I.A. — equine infectious anaemia
equiv. — equivalent

ft. — foot (feet) [measurement only]

Hb. — haemoglobin
H.I. — haemagglutination inhibition

inj. — injection(s)
insol. — insoluble
Inst. (inst) — Institute
i/m — intramuscular(ly)
i/p — intraperitoneal(ly)
i/v — intravenous(ly)
i/d — intradermal(ly)

lab. — laboratory (-ories)

max. — maximum (-al)

N.D.V. — Newcastle disease virus
N.D. — Newcastle disease

r.b.c. — red blood corpuscles
r.e.s. — reticuloendothelial system
R.H. — relative humidity

s/c — subcutaneous(ly)
soln. — solution
suppl. — supplement(s) (-ary)
std. — standard

temp. — temperature
therap. — therapeutic

U.V. — ultra-violet

vet. — veterinary
vol. — volume

w.b.c. — white blood corpuscles
wt. — weight

/ — per (*e.g.* wt./vol.; mg./lb. body wt.)

ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals* published in the years 1900-1950, 3rd Edit. (1952). London : Butterworths Scientific Publications.

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.